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ALASKA NATURAL GAS TRANSPORTATION SYSTEM
(Part 1)

JOINT HEARINGS
BEFORE THE
SUBCOMMITTEE ON
FOSSIL AND SYNTHETIC FUELS
OF THE
COMMITTEE ON ENERGY AND COMMERCE
AND THE
SUBCOMMITTEE ON
ENERGY AND THE ENVIRONMENT
OF THE
COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
HOUSE OF REPRESENTATIVES
NINETY-SEVENTH CONGRESS
FIRST SESSION
ON
H.J. Res. 341
PROVIDING FOR A WAIVER OF LAW PURSUANT TO THE
ALASKA NATURAL GAS TRANSPORTATION ACT

OCTOBER 21, 22, 23, AND 27, 1981

Serial No. 97-114
(Committee on Energy and Commerce)

Printed for the use of the Committe on Energy and Commerce and the
Committee on Interior and Insular Affairs

COMPLETED

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ALASKA NATURAL GAS TRANSPORTATION SYSTEM

WEDNESDAY, OCTOBER 21, 1981

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON FOSSIL AND SYNTHETIC FUELS, COMMITTEE ON ENERGY AND COMMERCE; AND SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT, COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,

Washington, D.C.

The subcommittees met, pursuant to notice, at 1:30 p.m., in room 2123, Rayburn House Office Building, Hon. Morris K. Udall (chairman, Subcommittee on Energy and the Environment) and Hon. Philip R. Sharp (chairman, Subcommittee on Fossil and Synthetic Fuels) presiding.

Mr. UDALL. This hearing will be in session.

Today we begin a series of hearings jointly sponsored by the Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs, and the Subcommittee on Fossil and Synthetic Fuels of the Committee on Energy and Commerce on issues related to the Alaskan Natural Gas Transportation Act. We have been requested by the President to consider waivers of law proposed to assure that the central intent of the Alaskan Natural Gas Transportation Act is carried out. The President's proposal has been introduced consistent with the act as House Joint Resolution 341 and will be accorded the special attention by the committees of jurisdiction to which it is entitled under the act.

The intent of Congress in passing that act in 1976 was to assure that the valuable reserves and enormous potential in gas resources of Alaska's North Slope be made available here in the lower 48 States. That act forced a national decision on the pipeline transportation system in a manner that would provide for the distribution of the gas resources, protect the environment and assure that the Federal permitting and oversight functions worked smoothly. The act also provides for the wavier of Federal laws if required for the project to go forward. The act's system for expedited consideration of such waivers is the procedure we are implementing today.

Through the waivers before us the President is asking Congress to provide pipeline sponsors assistance in their effort to procure debt financing for the project on the international lending market. As we will hear them explain for us today, the sponsors were unable to find backers for more than $18 billion in additional loans needed for completion of the Alaskan and Canadian segments of the project. At a total cost of $35 billion, the project easily outstrips the available financing for a single project available in any single country. In order to persuade a sufficient quantity of lenders to back the project up, the project's sponsors are asking us for three major protections.

First, some participation in project risk sharing would shift from the private sector to American gas consumers. Under what is known as the prebilling waiver, consumers here would be expected to pay the lenders and the Canadian participants back for completed pipeline segments if the entire line were not complete. Although the risks to consumers may be acceptably small relative to the potential benefit of the resource, this proposal represents a major change in the premise under which the project was selected and authorized for special treatment under the act. The proposal could result in savings for consumers in gas prices down the road, but only if the price of the gas continues to be subject to Federal control.

Second, the waivers would provide an unusual Federal guarantee that consumers will pay the full cost of the gas and a return on equity for investors in the project and for gas shippers, without appeal as to the appropriateness of the charge in light of any future economic situation.

The President's package also includes a provision allowing gas producers to buy equity participation in the pipeline project. Although such participation does not necessarily violate our existing antitrust laws, it was prohibited by the decision authorizing the pipeline under the Alaskan Natural Gas Transportation Act. As drafted, the proposed waiver attempts to assure that participation by gas producers will not result in limitations of access to the pipeline, or other anticompetitive practices.

The major proposals and the related waivers sent to us for consideration are said by the project sponsors to be a necessary, but perhaps not a sufficient, condition for the financing of the Alaskan gas pipeline project.

We are going to have to evaluate the proposal in terms of its fairness to the American consumer and make a determination whether the pipeline project continues under these conditions to be timely and worthy of special Federal intervention.

I personally feel that the commitment we have made thus far to this project, and the promise of the Alaskan resources, will weigh heavily in my decision.

[The text of H.J. Res. 341 follows:]

97TH CONGRESS
1ST SESSION

H. J. RES. 341

Providing for a waiver of law pursuant to the Alaska Natural Gas Transportation Act.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 19, 1981

Mr. UDALL (for himself and Mr. DINGELL) (by request) introduced the following joint resolution; which was referred jointly to the Committees on Energy and Commerce and Interior and Insular Affairs

---

JOINT RESOLUTION

Providing for a waiver of law pursuant to the Alaska Natural Gas Transportation Act.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the House of Representatives and Senate approve the waiver of the provision of law (Public Law 95–158, Public Law numbered 688, Seventy-fifth Congress, second session, and Public Law 94–163) as proposed by the President, submitted to the Congress on October 15, 1981.

Mr. UDALL. I recognize the gentleman from Indiana, Mr. Sharp, chairman of the commerce subcommittee here today.

Mr. SHARP. Thank you, Mr. Chairman.

I am delighted to be here with you at this hearing and would ask unanimous consent that my lengthy opening remarks be made a part of the record.

Mr. UDALL. Without objection, so ordered.

Mr. SHARP. I would like to indicate that I think we are here to seek answers to some basic questions which will help me, and I trust others on the committee, to determine what course we will take on the resolution before us.

The basic question, of course, is whether the Alaskan natural gas pipeline continues to be a project so critical to the United States that it warrants the extraordinary treatment that the waiver proposal would provide for it, in addition to the special attention we have already given it under present law.

There are a number of other questions that I think we will be seeking answers to.

First, does the kind of ratepayer back financing contemplated by the waiver proposal truly qualify as so-called private financing, which has always been promised for this project and has always been seen as the market test of the worth of this project?

Second, should considerations of the domestic source, secure supply or cleanliness of Alaskan gas offset any economic risks or drawbacks we have received?

Third, what is the risk of project failure and why must that risk be assumed by the customers of natural gas pipelines and companies which would receive benefit from the project?

Fourth, what are our outstanding commitments to Canada, and must we adopt the waiver proposal in order to live up to those commitments?

Fifth, is the project still an economically sound venture?

Sixth, are the special regulatory protections requested in the proposal truly necessary?

Finally, how will this project and its delivered gas relate to a natural gas market that could be partially or totally deregulated before the Alaskan pipeline is complete?

Mr. Chairman, I am delighted to join with you in what I think will be a very intense set of hearings. I have always considered the project very important and have supported past legislation that we had hoped would bring about this project.

I am willing to give it the benefit of the doubt to the point that I think we get solid answers to these kinds of questions.

Thank you very much, Mr. Chairman.

[Mr. Sharp's prepared statement follows:]

STATEMENT OF HON. PHILIP R. SHARP

This afternoon we begin a series of hearings on President Reagan's proposal to waive several provisions of law for the benefit of the Alaska Natural Gas Transportation System. This is the latest, and hopefully last, Congressional involvement with a project that was declared to be critical to the national interest before it was even selected. The waiver proposal will provide a new test of the national interest in having pipeline access to Alaska natural gas resources for the contiguous United States.

The waiver proposal the President has sent us, now incorporated in a Joint Resolution introduced by Chairmen Dingell and Udall, must be dealt with by Congress within 60 calendar days of continuous session, starting the day after it was received, and excluding recesses of three days or more. We have until December 19th, by the Committee staff's calculation, if Congress remains in session that long. The Committees to which the resolution is referred have thirty calendar days, or until November 19th, after the referral, during which to consider the merits of the proposal and vote upon it. After the thirty-day period has run, the Committees may report the resolution and are subject to a highly privileged discharge motion on the floor. Hence our intent is to complete our review of the waiver proposal and consider it at the Subcommittee and Full Committee level within this short period of time.

The basic question we face is whether the Alaska natural gas pipeline continues to be a project so critical to the United States that it warrants the extraordinary treatment that the waiver proposal would provide for it, in addition to the special attention and regulatory fast track it has already been assured by law.

There are a number of other questions to which we must have answers before we decide the fate of this waiver proposal:

Does the kind of ratepayer-backed financing contemplated by the waiver proposal truly qualify as the "private financing" which has always been promised for this project and which has always been seen as a market test of its worth?

Should considerations of the domestic source, secure supply, or environmental cleanliness of Alaskan gas offset any economic drawbacks?

What is the risk of project failure, and why must that risk be assumed by the customers of the companies involved in the project?

What are our outstanding commitments to Canada and must we adopt the waiver proposal in order to live up to them?

Is the project still an economically sound venture?

Are the special regulatory protections requested in the waiver proposal necessary?

How will this project and its delivered gas relate to a natural gas market that will probably be partially or totally deregulated before the Alaska gas pipeline is complete?

There was a time we hoped that the waiver requests could be modified to reduce the problems implicit in them, and much progress was made to do so, although not as much as I think might have been. Nonetheless, the proposal before us is not subject to amendment, and the process of attempting to improve the waivers and increase their acceptability is over. We must now begin the separate process of taking the waiver proposal as it stands, not as it was originally proposed by the sponsors or as it might have been, and deciding whether or not it should be passed.

Like many in Congress, I have favored this project and voted for the laws and resolutions supporting it since its inception. I would not, however, support this project at any cost or regardless of changed circumstances and consequences. No Member of Congress could justifiably pledge that kind of blind support. My first instinct is to continue believing in a real need to make Alaskan gas available. I would even accept some level of governmental favoritism, consumer cost and risk-bearing. However, there is a line I will not cross with this project or any project. How close the waiver proposal takes the Alaskan gas project to that line is the question I hope these hearings will answer for me and the other Members of the two Subcommittees.

Mr. UDALL. The distinguished ranking minority member, the gentleman from Ohio.

Mr. BROWN. Mr. Chairman, I would like to thank both you and Mr. Sharp for convening this hearing on the proposed waiver of the law for the Alaskan natural gas pipeline.

On October 15 the President transmitted waiver of the law covering the financing regulation of the Alaskan natural gas pipeline, as requested by the sponsors of the project in order to enhance their opportunities for obtaining financing for the project. The waiver has now been introduced as a joint resolution by Mr. Dingell and Mr. Udall.

We have difficult issues and difficult decisions before us. We must reconcile them within a short period of time; in effect, 30 days.

On September 22, 1977 President Carter released his decision approving the then called Alcan highway route, submitted his decision, along with the report, to the Congress detailing regulatory policy of the pipeline.

Four important conditions, among others, were contained in President Carter's decision:

One, the project must be privately financed;

Two, consumers could not be billed until the entire project was completed and commissioned;

Three, the oil companies which owned the gas at Prudhoe could act as lenders but could not participate as equity partners in the pipeline consortium; and

Four, the gas conditioning plant necessary to prepare the gas to be pipeline quality would be financed and constructed at the expense of the oil companies and not as a part of the pipeline, although a charge for this service could be passed on to consumers.

In testimony at the hearings before the same two committees, the sponsoring pipeline consortium accepted these conditions, if you will, the quid pro quo for the consortium being granted the sole license to operate the transmission system.

The chairman of the pipeline consortium, Mr. John McMillian, with us again today, told us on September 22, 1977, with regard to the most important issue of financeability, and I quote:

> The President's decision requires the Alcan project to be privately financed in its entirety. The United States and Canadian Governments will not be called upon for financial guarantees. Nor will the consumer have to bear the hypothetical burden of the noncompletion of the project. Instead, other primary beneficiaries of the project will be called upon to provide the necessary financial backing. We believe that Alcan can obtain the necessary project financing from Canadian and United States sources.
>
> This pipeline will have a reserve life of at least 25 years, which is greater than any other pipeline in this country. With these large, proven volumes, the managability of the technological and engineering requirements of our project and the great need for the energy supplies, there is little doubt that the pipeline will be successfully financed and built.

I have had copies of the complete statement made and distributed and ask that one be made part of our record today.

Mr. **Udall**. Without objection, so ordered. [See p. 8.]

Mr. **Brown**. Following our series of hearings in 1977 on the President's decision granting the consortium the sole license and imposing certain conditions, the Congress ratified President Carter's decision.

So, as of November 1977 this consortium of various pipeline companies has had, again, if you will, the license to operate the line.

Now, many things have happened between 1977 and 1981. The sponsors have been by all accounts most diligent in pursuing private financing for the project. But to date they have been unable to obtain financing.

We hope to learn the reasons why financing has not been forthcoming through these hearings and, accordingly, why the waiver of all four of the conditions imposed by President Carter and the Congress are considered to be necessary.

It is, however, not yet clear that private financing will be forthcoming, even with the approval of the waiver of law. Again, we hope this series of hearings will help us assess the prospects for such private financing of the project.

Mr. Chairman, I join you in welcoming the Secretary of Energy and the chairman of the Alaskan Northwest Transportation Co., and our colleague, Don Young, and others who will testify today on this issue, and hope that the hearings will be illuminating.

Mr. UDALL. I thank the gentleman.

Mr. BROWN. I would ask unanimous consent that a longer statement of somewhat more detail be included in the record.

Mr. UDALL. Without objection, so ordered.

[Testimony resumes on p. 43.]

[Mr. Brown's prepared statement and attachments follow:]

REMARKS OF THE HON. CLARENCE J. BROWN
BEFORE THE SUBCOMMITTEE ON FOSSIL AND SYNTHETIC FUELS

October 21, 1981

Proposed Waiver of Law for the Alaskan Natural Gas Transportation System

Mr. Chairman, I would like to thank both Mr. Sharp and Mr. Udall for convening this hearing on the proposed waiver of law for the Alaskan Natural Gas Pipeline.

On October 15, the President transmitted the waiver of law covering the financing and regulation of the Alaskan Natural Gas Pipeline as requested by the sponsors of the project in order to enhance their opportunities for obtaining financing for the project.

The law, in this case, which the proposed waiver would alter, is controlled by an Act of Congress -- the Alaskan Natural Gas Transmission Act of 1978 -- and by a Presidential Decision of 1977 made by President Carter pursuant to that Act. As provided in Section 8(g) of the Act, only the President can propose changes in the law and only if he finds them necessary to "permit expeditious construction and initial operation" of the pipeline. President Reagan has made that finding and accordingly has transmitted the waiver to the Congress for our consideration.

Unless both Houses of Congress approve the waiver of law by joint resolution within 60 calendar days, excluding adjournments of more than 3 days, then the waiver of law cannot become effective. An expeditious procedure is created for our consideration in Committee -- we have but 30 days within which to report to the full House or become subject to a highly privileged motion to discharge.

In other words we have difficult issues and difficult decisions before us, and we must reconcile them within a short period of time.

Mr. Chairman, if I may, perhaps I could share with my colleagues the history of the waiver of law now before us.

The 26 trillion cubic feet of natrual gas at Prudhoe Bay were discovered in 1968, but it was not until the mid-1970's that the economics of transporting the gas to the lower 48 States seemed good enough to propose pipeline routes to the Federal Power Commission, now the Federal Energy Regulatory Commission.

The FPC, however, was deadlocked and unable to determine one route over another, and so in 1976 in the Alaskan Natural Gas Transportation Act the Congress withdrew the authority to reach a final decision from the FPC and granted the sole authority to select the project sponsor to the President. The Act established basic regulatory framework and required a Presidential decision which would become effective upon Congressional approval.

On September 22, 1977, President Carter released his decision approving the then-called Alcan Highway Route; submitted his decision along with a report to the Congress detailing regulatory policy of the pipeline.

Four important conditions were contained in President Carter's Decision:

1. The project must be privately financed;
2. Consumers could not be billed until the entire project was complete and commissioned;
3. The oil companies which own the gas at Prudhoe could act as lenders but could not participate as equity partners in the pipeline consortium; and
4. The gas conditioning plant necessary to prepare the gas to be pipline quality would be financed and constructed at the expense of the oil companies, and not as part of the pipeline, although a charge for this service could be passed on to consumers.

In testimony at hearings before these two Committees, the sponsoring pipeline consortium accepted these conditions as, if you will, the quid-pro-quo for the consortium being granted the sole license to operate the transmission system.

The Chairman of the pipeline consortium, Mr. John McMillian -- with us again today -- told us on September 22, 1977, with regard to the most-important issue of financability:

"The President's decision requires the Alcan project to be privately financed in its entirety. The United States and Canadian governments will not be called upon for financial guarantees. Nor will the consumer have to bear the hypothetical burden of the non-completion of the project. Instead, other primary beneficiaries of the project will be called upon to provide the necessary financial backing. We believe that Alcan can obtain the necessary project financing from Canadian and United States sources. This pipeline will have a reserve life of at least 25 years which is greater than any other pipeline in this country. With these large proven volumes, the managability of the technological and engineering requirements of our project and the great need for the energy supplies, there is little doubt that the pipeline will be successfully financed and built."

I have had copies of the complete statement made and distributed and ask that one be made part of our record today.

Following our series of hearings in 1977 on the President's Decision granting this consortium the sole license and imposing certain conditions, the Congress ratified President Carter's decision. So as of November 1977, this consortium of various pipeline companies has had the "license" to operate the line.

Now, many things can and have happened between 1977 and 1981.

The sponsors have been, by all accounts, most diligent in pursuing private financing for the project. But, to date, they have been unable to obtain financing. We hope to learn the reasons why financing has not been forthcoming through these hearings, and accordingly, why the waiver of all four of the conditions imposed by President Carter and the Congress are considered necessary.

It is not yet clear that private financing will be forthcoming even with the approval of the waiver of law. We hope to understand the prospects better.

The waiver of law has had a history of its own. When President Reagan received the original proposed waiver from the sponsors, he asked Secretary Watt to convene an interagency working group. Secretary Watt, in turn, also established an ad hoc Congressional "consulting" group, consisting of the Chairmen and Ranking Minority Members of the Senate Committee on Energy and Natural Resources, the House Committees on Energy and Commerce and on Interior and Insular Affairs, plus the Alaskan delegation of Senators Stevens and Murkowski and Congressman Young. Congressmen Broyhill and myself were among those included.

For several weeks the respective Committee staffs met to discuss the waiver requests. Drafts of substitutes were proposed, but no resolution of the major issues was made.

In meetings of the Congressmen and Senators, the basic issues -- involving how much should the original quid-pro-quo be changed -- were again discussed, but these meetings also proved fruitless.

On July 22, the six Congressmen wrote to our Senate colleagues to state that further negotiations were necessary to produce an acceptable resolution. No response was received.

On July 24, the Senators wrote the President stating their conviction that no further progress could be made "on the Hill", and urged the President to agree to an attached revision of waiver requests drafted by the Senators, in negotiations with the sponsors.

Again on Septmeber 14, the Senators wrote the President urging him to consider their earlier letter with a favorable and prompt response.

On September 23, Congressmen Dingell, Sharp, and Udall sent their letter to the President stating that only the President can begin the process of formally reviewing the waivers, urging the President to act, but making no commitments of support.

Also on September 23, Congressman Broyhill and myself wrote to the President our concern that the sponsor requests were unacceptable, at least with regard to the issue of billing consumers prior to and whether or not the project is ever completed.

Mr. Chairman, copies of all this correspondence should be made a part of our record today.

And as we know, President Reagan transmitted the waiver of law -- essentially as drafted by our Senate colleagues -- to Congress on October 15.

Mr. Chairman, my apologies for a lengthy statement -- but then again it has been a long process that has brought us here today.

I join you in welcoming the Secretary of Energy and the Chairman of the Alaska Northwest Pipeline Company.

TESTIMONY OF JOHN G. MCMILLIAN
CHAIRMAN AND CHIEF EXECUTIVE OFFICER OF ALCAN PIPELINE COMPANY BEFORE THE SUBCOMMITTEE ON PUBLIC LANDS AND INDIAN AFFAIRS OF THE HOUSE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS AND THE SUBCOMMITTEE ON ENERGY AND POWER OF THE HOUSE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

SEPTEMBER 22, 1977

Mr. Chairmen:

I am John G. McMillian, Chairman and Chief Executive Officer of Alcan Pipeline Company. With me today are the chief executive officers of three of the Canadian companies who will be our partners in the construction and operation of the Alcan project: Kelly Gibson of Foothills (Yukon) Pipeline Limited, S. Robert Blair of Alberta Gas Trunk Line Limited, and Edwin Phillips of Westcoast Transmission Company Limited.

We are very pleased to appear here today to support the President's decision selecting Alcan as the system for transporting natural gas from Alaska's North Slope to the lower 48 states. The Alaska Natural Gas Transportation Act of 1976, which both of your Subcommittees considered last year established a carefully structured selection procedure. The mandated process resulted in one of the most extensive and detailed inquiries that ever preceded a major decision, and clearly led, we think, to the right decision.

The correctness of the President's selection is evidenced by the findings of the federal agencies which studied the issue as well as by the strong support for Alcan from concerned and informed groups such as shippers, environmentalists, and state regulatory agencies. All of these agencies and groups have concluded that our overland pipeline system across Canada was preferable to a liquefied natural gas system and that an LNG system should only be selected if no acceptable overland transit was obtainable from Canada. The all around superiority of an overland pipeline to a pipeline/tanker system was well established in the lengthy hearing process with compelling proof that a complex multi-mode LNG system would be significantly less efficient, utilize technology untested on the scale required, create substantially greater environmental dangers and impacts as well as require the delivery of unprecedented volumes of energy to the far edge of our country's natural gas distribution network rather than directly to the markets where the gas is needed.

It thus became of critical importance to the selection of a system best suited to our country's needs to work out a mutually beneficial agreement with Canada for a pipeline to transport Alaska gas. Fortunately, Canada's own need for a pipeline from the Far North, described in the Canadian National Energy Board's decision of July 4, 1977, and the long history of cooperation between the United States and Canada made it possible for our two governments to reach an agreement on the Alcan project. The negotiators for each country had the long and close inter-relationship of the two countries in oil and gas matters as a firm foundation on which to build. For example, all oil shipped from western Canada to eastern Canada and large volumes of Canadian oil imports cross the United States by pipeline. Similarly, 40 percent of the gas shipped from Canada's western provinces to its eastern provinces cross the United States by pipeline. Another important aspect of the energy interdependence of our two countries is the Canadian natural gas exports to the United States. Currently, 2.7 billion cubic feet per day -- 5 percent of total United States' gas consumption -- is imported into this country from Canada.

Alcan strongly supports the Agreement in Principle that has been carefully negotiated between the two countries. It exemplifies the historic tradition of cooperation between Canada and the United States wherein each country maintains its independence, but both recognize their interdependence. The Administration has described the details of this Agreement so I will not go over it but will merely reiterate that it very significantly benefits the interests of both countries and represents an unusual negotiating success resulting in improvements over the National Energy Board decision for both parties. This is extremely important since such a mutually beneficial agreement will encourage everyone involved to enthusiastically carry out its terms and expeditiously accomplish its objectives.

The 1976 Act found that the "expeditious construction of the Alaska natural gas transportation system is in the national interest." In view of this need for accelerated action, it is now appropriate for Congress to approve the Presidential decision promptly for the project decided upon has been proven to be in the best interest of our country. If congressional action is put off, construction of the system will be materially delayed and the short-term Alberta supplies which Canada will make available cannot be delivered as now planned for the 1979-80 heating season.

The Alcan project, which will use the Alyeska right-of-way, the Alaska Highway and other existing corridors to minimize environmental damage and to facilitate more predictable and reliable construction and operation, is superior to the alternative LNG system in almost every respect. Let me briefly state some of Alcan's important advantages:

1. Economics -- Alcan has a clear advantage in cost of service, which is the measure of the cost of transporting gas. The Administration has estimated that Alcan will have a twenty-year average cost of service of $1.03 to $1.05 per million Btu's in 1975 dollars compared to $1.19 to $1.21 per million Btu's for the LNG option. These estimates include substantial allowances for cost overruns.

Alcan's own estimates of its cost of service excluding such theoretical cost overruns are significantly lower, at $.90 per MMBtu.

The Administration's cost overrun estimates appear to be of the same magnitude as the percentage difference between the final preconstruction cost estimates for Alyeska and Alyeska's actual total costs. We do not believe that we will confront cost overruns of the magnitude experienced by Alyeska since our situation differs significantly from that which Alyeska had to confront.

The oil line is located entirely in Alaska and was built almost entirely across virgin terrain. In contrast, the Alcan system can be divided into five segments: Alaska, the Yukon, the rest of Canadian construction, and the eastern and western legs in the lower 48. The Canadian construction and the construction in the lower 48 will be built under fixed price contracts. Construction in British Columbia, Alberta and Saskatchewan will be carried out by experienced pipeline companies, which will be building in their own "back yard." Thus, substantial cost overruns on these three segments are unlikely.

Although overruns are a greater possibility in Alaska and the Yukon, our Canadian partners have construction experience in the Yukon and, both there and in Alaska, we will be able to utilize existing highways and utility corridors, such as the Alyeska corridor. Furthermore, the cost estimates for the Alaska section have been based on Alyeska experience and were not questioned during the Federal Power Commission proceeding. Thus, we believe that careful examination of our project shows that significant cost overruns can be avoided.

Alcan also has a higher Net National Economic Benefit (NNEB), which is a method of measuring the economic benefits and costs to the country from a given project. The Administration has calculated that Alcan will have an NNEB of $5.76 billion; over $1. billion greater than the alternative project. We believe that our NNEB will be even greater, but by any standard, Alcan provides the United States a significant net economic advantage.

2. Early Deliverability -- This factor is important in view of the existing natural gas shortage.

We estimate that the Alcan system can begin to deliver Alaska gas by January 1, 1983 if it is expeditiously approved, over a year before an LNG system could be operational. With prompt regulatory action and expeditious construction of the southern end of the Alcan system we should be able to begin deliveries of additional volumes of Canadian gas during the winter of 1979-80 which could be as much as 800 million cubic feet per day.

3.. Continued Canadian Gas Exports -- The Canadian gas export of 2.7 billion cubic feet per day is approximately 5 percent of United States gas consumption. If Canada is to supply its own domestic markets from presently accessible reserves, it will be required to cut back or eliminate these exports to the United States in the 1980's unless Canada can then transport its frontier reserves. The most effective way for the United States to avoid such cutbacks is to facilitate Canadian access to these presently inaccessible frontier reserves. Alcan will provide economic transportation for Canada's frontier reserves but an LNG system obviously would not. As a consequence, the 2.0 to 2.5 billion cubic feet per day of Alaska gas delivered by LNG tankers could be more than offset by the loss of 2.7 billion cubic feet per day of Canadian gas.

4. Gas Distribution and Delivery -- The Alcan system will deliver gas directly by pipeline to both the western and eastern United States. The President's decision provides for a western leg for the Alcan system to transport Alaska gas directly to the states in the Far West and an eastern leg for delivery of gas directly to the Midwest; from there it can be transhipped to the eastern part of the country. Thus, Alcan will permit equitable and efficient distribution of Alaska gas to all regions of the country.

An LNG system would deliver all of the Alaska gas to the Southern California area. From there it would have to be moved to the rest of the country by displacement, which is the exchange of gas at one location for an equivalent amount of gas at another location. Displacement on such a massive scale is not a satisfactory basis for long-term delivery of Alaska gas reserves.

5. Environmental Factors -- The Alcan project was determined to be environmentally preferable to all alternative projects. It assures minimal adverse environmental impacts by utilizing an all-pipeline system which largely follows existing utility and transportation corridors.

All agencies and disinterested parties in the United States and Canada which have reviewed the Alaska gas transportation proposals have recognized Alcan's environmental superiority. The Council on Environmental Quality, in its report to the President, found that Alcan "is the most environmentally acceptable proposal."

We will exert our best efforts to build Alcan as the most environmentally sound project possible. We have met on numerous occasions with the interested environmental groups and have informed them that we will involve them in the pipeline planning and design process at the earliest possible time. In this way, we hope to flag potential environmental problems so that they can be avoided to the fullest extent possible. We believe that this effort together with close cooperation with involved governmental agencies will materially assist our efforts to build a system that minimizes environmental disruption.

It should be noted that the Alcan system developed as a direct result of the National Environmental Policy Act and is testimony to its value. The Council on Environmental Quality stated in their July 1 report to the President:

> The Alcan proposal and the FPC Supplement (environmental impact statement) were direct outgrowths of this federal agency analysis of reasonable alternatives. This development is a tribute to NEPA and illustrates the value of the environmental impact statement process to federal decision-making.

6. Fuel Efficiency -- The Alcan system will utilize 7.9 percent of the Alaska gas for transportation purposes while an LNG system would require at least 10.9 percent of the Alaska gas for fuel in its pipeline and LNG systems plus fuel for its tankers. This improved fuel efficiency of Alcan on an annual basis is 30 billion cubic feet, sufficient to heat over 245,000 homes. Alcan's effective fuel use can be further substantially reduced by utilizing gas from Alberta for compressor fuel in Canada, a possibility we will be pursuing.

7. Safety and Reliability -- An all pipeline system is inherently more reliable than an LNG system, which is subject to a substantial probability of service interruption. The Council on Environmental Quality concluded that the "analyses of LNG public safety risks on the record are inconclusive." By contrast, natural gas pipelines have a long

and well established record of being extremely safe.

8. Financability -- The President's decision requires the Alcan project to be privately financed in its entirety. The United States and Canadian governments will not be called upon for financial guarantees. Nor will the consumer have to bear the hypothetical burden of the non-completion of the project. Instead, other primary beneficiaries of the project will be called upon to provide the necessary financial backing. We believe that Alcan can obtain the necessary project financing from Canadian and United States sources. This pipeline will have a reserve life of at least 25 years which is greater than any other pipeline in this country. With these large proven volumes, the manageability of the technological and engineering requirements of our project and the great need for the energy supplies, there is little doubt that the pipeline will be successfully financed and built.

These are some of the major advantages which make Alcan the best choice for an Alaska natural gas transportation system and which merit prompt approval by the Congress of the President's decision.

In closing, I would like to briefly mention some issues connected with the actual building of the project. We are concerned that the system be built in the most efficient, expeditious and cost conscious manner that is possible.

To accomplish this goal, we have reached several conclusions which I would like to share with you. First, we intend to profit from the Alyeska experience. Rational planning and careful sequencing of work can greatly reduce the risk of cost overruns and schedule delays. Further, as I mentioned earlier, we hope to work closely with environmental groups, in order to develop environmentally sound designs and plans at the outset. We will, of course, work closely with the numerous government agencies which will be involved in the authorizing and approval process and cooperate with the Federal inspector of construction, whose role of assuring the building of a sound system was established by the 1976 Act. We are also preparing to institute and diligently pursue a positive program of assuring minority business enterprises participation in provision of material and construction.

Alcan welcomes the coordinated federal oversight of project management and construction that has been proposed to avoid needless construction delays and cost increases for we strongly believe that this coordinated regulatory approach recommended in the Presidential decision is essential to minimize cost overruns and insure the lowest possible cost of service price to United States consumers. We point out that as experienced members of the regulated gas industry, we are comfortable working with close regulatory supervision and that the United States - Canadian agreement provides us with powerful incentives for effective project cost control. Furthermore, we believe that this required close government-industry cooperation will materially assist us in obtaining project financing.

In conclusion, let me assure you that Alcan will do everything reasonably possible to insure the timely completion of the project with appropriate construction quality, cost control and safety and environmental protection.

~~July 24, 1981~~

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

On June 17, 1981, the partnership designated to construct and operate the Alaskan segment of the Alaska Natural Gas Transportation System requested you to consider and submit to Congress for approval several waivers of law that they identified as necessary to move forward with private financing of the gas pipeline. Since that time we have been working with Secretary Watt and members of your staff in reviewing their waiver request.

We should state at the outset that we firmly believe Congress is supportive of a privately financed pipeline project. The project is in the national interest. It will promote our national defense by making us less dependent upon unstable foreign governments for our basic energy resources, will provide productive stimulation of our economy, and will promote bilateral cooperation with the Government of Canada on energy issues.

We are willing to support Congressional action to remove the remaining regulatory obstacles to private financing of the project. We are not willing to support a package which would undermine the fundamental protections afforded consumers of natural gas by our existing law.

Our review of the original waiver package submitted to you has convinced us that it included several waivers that are much broader than necessary to achieve the desired result. We suggest that you forward to the Congress a much less ambitious waiver package.

Through extensive investigation by staff and direct contact with involved representatives of the financial community, the North Slope gas producers, and the pipeline sponsors, new waiver language has been prepared that we believe removes the existing legal impediments to financing this project without unduly burdening the American consumer or eviscerating needed legislative and regulatory safeguards.

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We have met with several of our colleagues in the House of Representatives who serve as Chairmen and Ranking Minority Members on the authorizing Committees with jurisdiction over the project. We have discussed the project in detail. We recognize that they are not yet prepared to support the waiver package in its entirety. But they have assured us that any waiver package submitted would certainly be taken up in good faith.

The waiver process is a difficult one. It has certain inherent difficulties. It is, however, the only process available to us whereby we can assure that Congress will examine the remaining regulatory obstacles facing the process in a timely fashion. Unless we act in this session, the project cannot be constructed on schedule, and we will face the loss of another year of construction time. The project sponsors must make long-range procurement commitments for the gas conditioning plant in 1982. The Commission will need time after the waiver package is approved to act on the final certificate application, the financing plan, and the partnership agreement before the sponsors will be able to proceed.

In order to provide adequate time for Congress to address the waiver package once presented, we urge your prompt consideration of the revised proposal. We stand prepared to meet with you at your earliest convenience to discuss this important matter.

With best wishes,

Sincerely,

TED STEVENS
United States Senator

✓FRANK H. MURKOWSKI
United States Senator

HENRY M. JACKSON
United States Senator

JAMES A. MC CLURE
United States Senator

bcc: Senator Henry M. Jackson
Senator James A. McClure
✓Senator Frank H. Murkowski

MS:mb

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DRAFT WAIVER PACKAGE
July 24, 1981

1. Producer Ownership Participation

   Waive Section V, Conditions IV-4 and V-1, of the President's Decision to the extent that producers of Alaska natural gas are permitted to participate in the ownership of the Alaska segment of the approved transportation system provided that any agreement or producer participation may be approved by the Commission only after consideration of advice from the Attorney General and upon a finding that the agreement will not (a) create or maintain a situation inconsistent with the antitrust laws, or (b) in and of itself create restrictions on access to the Alaska segment of the approved transportation system for non-owner shippers or restrictions on capacity expansion.

2. Conditioning Plant

   Waive Section 2, Paragraph 3, First Sentence, of the President's Decision to include the gas conditioning plant in the approved transportation system and in the final certificate to be issued for the system; waive the application of Section V, Condition IV-2, to the gas conditioning plant.

3. Evidentiary Hearing Requirement

   Waive Section 7(c)(1)(B) of the Natural Gas Act to the extent that it applies to applications for certificates of public convenience and necessity authorizing the construction or operation of any segment of the approved transportation system to the extent that it can be construed to require the use of formal evidentiary hearings; provided, however, that that waiver shall not be construed to preclude the use of formal evidentiary hearing(s) whenever the FERC determines, in its discretion, that such a hearing is necessary.

4. Authority to Modify or Rescind Orders

   Waive Sections 4, 5, 7, and 16 of the Natural Gas Act to the extent that such sections would allow the Commission to change the provisions of any final rule or order approving (a) any tariff in any manner that would impair the recovery of the actual operation and maintenance expenses, actual current taxes, and amounts necessary to service debt, including interest and scheduled retirement of debt, for the approved transportation system; or (b) the recovery by purchasers of Alaska gas of all costs related to transportation of such gas pursuant to an approved tariff.

5. Regulatory Status as a "Natural Gas Company"

   Waive Sections 1(b) and 2(6) of the Natural Gas Act to the extent necessary to ensure that the Alaskan Northwest Natural Gas Transportation Company or its successor and any shipper of Alaska natural gas through the Alaska segment of the approved transportation system may be deemed to be a "natural gas company" within the meaning of the Act at such time as it accepts a final certificate of public convenience and necessity authorizing it to construct or operate the Alaska segment of the approved transportation system or to ship or sell gas that is to be transported through the approved transportation system.

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6. Import and Export Authority

Waive Section 3 of the Natural Gas Act and Section 103 of the Energy Policy and Conservation Act as they would apply to natural gas transported through the Alaska segment of the approved transportation system to the extent that any authorization would otherwise be required for --

(a) the exportation of Alaska natural gas to Canada (to the extent that such natural gas is replaced by Canada downstream from the export);

(b) for the importation of natural gas from Canada (to the extent that such natural gas replaced Alaska natural gas exported to Canada); and

(c) for the exportation from Alaska into Canada and the importation from Canada into the Lower 48 States of the United States of Alaska natural gas.

7. Billing Commencement Date

Waive Section V, Condition IV-3, of the President's Decision to the extent necessary to allow the Commission, in issuing a final certificate for the approved transportation system to approve tariffs which authorize billing to commence and collection of rates ahd charges to begin and which authorize recovery of all costs paid by purchasers of Alaska gas for transportation through the system pursuant to such tariffs --

(a) to permit recovery of the full cost of service for the pipeline in Canada to commence --
    (1) upon completion and testing of the pipeline in Canada, and
    (2) not before a date certain, as determined by the Commission in consultation with the Federal Inspector, to be the most likely date for the approved transportation system to begin operation; and
(b) to permit recovery of the actual operation and maintenance expenses, actual current taxes and amounts necessary to service debt, including interest and scheduled retirement of debt, to commence --
    (1) for the Alaska pipeline segment --
        (A) upon completion and testing of the Alaska pipeline segment, and
        (B) not before a date certain, as determined by the Commission in consultation with the Federal Inspector, to be the most likely date for the approved transportation system to begin operation; or
    (2) for the conditioning plant segment --
        (A) upon completion and testing of the conditioning plant segment, and
        (B) not before a date certain, as determined by the Commission in consultation with the Federal Inspector, to be the most likely date for the approved transportation system to begin operation.

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United States Senate
WASHINGTON, D.C. 20510

September 14, 1981

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

We wrote you on July 24, 1981 to urge your prompt consideration of a waiver package we believe would remove regulatory impediments to private financing of the Alaska Natural Gas Transportation System. As stated in that correspondence, it is our deeply seated conviction that this project serves the national interest. Proven gas reserves in Prudhoe Bay represent approximately 15 percent of domestic reserves. By providing roughly 5 percent of our current gas consumption needs over a period of 20 - 30 years, the project would improve this nation's chances for energy sufficiency, promote national defense, and enhance the overall economic condition in this country.

Clearly this project does entail a mammoth capital investment. Yet, various economic analyses indicate that this gas will be priced competitively and will, in fact, be a relatively inexpensive source of energy as the capital investment in the pipeline is depreciated and amortized over the life of the project. The purpose of our proposed waiver package is to ensure that ultimate determination of the economic viability of this project be made by the sponsors in conjunction with private capital markets.

We write today to request that you present to Congress the waiver package we delivered with our letter of July 24. (Attached is a copy of the waiver package and a synopsis of the need and function for each item in the package.) After thorough deliberation, we stand convinced that this package provides enough economic certainty to allow a reasonable opportunity for project sponsors to obtain private financing while preserving fundamental protections afforded natural gas consumers under existing law. This is not to say that the bankers or project sponsors are entirely content with these waivers; they expressly are not. Nor does this preclude the Administration from offering additional waivers in the future to improve upon or supplement the initial package. However, it is our opinion that this package comports with traditional principles of private financing and affords the minimum changes in existing law necessary to allow for successful capitalization of the project.

We have reached a critical stage concerning the timing of Congressional consideration of this waiver package. After meeting extensively with several of our colleagues in the House of Representatives, we realize that a negotiated solution among House and Senate principals is not possible given the imperative need for prompt consideration of this issue. The Alaska Natural Gas Transportation Act of 1976 imposes statutory time constraints upon the waiver process. We are in danger of expending the time needed for deliberation of the waivers on the decision of what package to propose.

Moreover, roughly $1 billion has already been invested in this project by Canadian and U.S. firms. These firms cannot indefinitely continue to funnel capital into this effort without some encouragement that the Federal government will address the fundamental concerns encompassed by this waiver package. Failure to address these waivers this session will set the project back at least one year and could conceivably result in the dissolution of an increasingly pessimistic consortium of sponsor firms.

Further, the merits of this package sufficiently outweigh its vulnerability to assault by those who may disagree with the need for the Alaska Natural Gas Transportation System or for a particular provision in the waiver package. If the Alaska Natural Gas Transportation System is destined to fail or prosper, it should do so after open and clarifying debate of the waiver package in Congress. This would allow the American public, the financial community and the Canadian government the benefit of knowing exactly where Members of Congress stand regarding delivery of this gas and on the overall commitment to resolve this nation's energy problem.

Mr. President, let us stress two additional points regarding the importance of this package and indeed the project. First, the is a real fear that failure to deliver 27 trillion cubic feet of proven reserves of natural gas (with gas being discovered frequently on new North Slope leases) will result in a pervasive lack of confidence by industry in the resolve of our government to support needed transportation systems from arctic and frontier areas. For instance, there would be little point in continuing to explore the other parts of the North Slope, the National Petroleum Reserve-Alaska, or the Beaufort Sea.

Second, we have all made commitments to the Canadian government to make a good faith effort to bring this project to fruition. Our government has committed itself to this project through numerous legislative and Executive actions. Relying upon these assurances, the Canadian government authorized additional natural gas exports and the sponsors in Canada undertook to pre-build portions of this system in anticipation of construction in Alaska. Expectations are high throughout the Canadian government and private sector. Any perceived unwillingness by our Government to take reasonable steps to promote this project will certainly be interpreted as a breach of faith if not a breach of international agreement. We may needlessly risk harm to our already delicate commercial relationship with Canada.

Another concern of ours is that your decision regarding the waiver package has become associated with your decision on natural gas price policy. Regardless of our individual views on natural gas price policy, it is our opinion that these two issues can be clearly distinguished and should be dealt with based upon their individual merits and not as mutually exclusive propositions.

To sum up, it is our collective view that failure to address the waiver package which removes the remaining regulatory impediments to providing private financing of the project would be inexplicable to our constituents, the financial community, and our Canadian allies. We strongly endorse the enclosed waiver package and encourage you to present it to Congress at your earliest possible convenience. We further request a meeting with you to discuss your decision. We stand ready to meet at your earliest convenience to ensure prompt disposition of this important matter.

Sincerely,

JAMES A. McCLURE

TED STEVENS

FRANK H. MURKOWSKI

HENRY M. JACKSON

Enclosures (2)

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ANGTS WAIVER PACKAGE

SYNOPSIS OF EACH PROVISION

September 14, 1981

1. Producer Ownership Participation

The President's 1977 Decision recognized that "(P)roducer participation in the financing of the project is warranted due to the beneficiary status and their financial strength." However, it limited that participation by prohibiting producers from having an equity interest in the project. The prohibition was based upon antitrust concerns, as expressed by the Department of Justice. A more thorough analysis of the antitrust issues reveals that the producers' ability to exert monopoly control over the project, or to inhibit further development of North Slope reserves by controlling the sole transportation available to natural gas markets, would most likely stem from their ability to limit access to the system or restrict its expansion. By requiring the Commissio in consultation with the Attorney General, to address the access and expansion issues at the time of the final ANGTS certificate issuance, the proposed waiver provides sufficient antitrust protection to meet the express concerncs. Without the waiver of the prohibition against equity participation, the producers are categorically unwilling to invest in the project.

2. Conditioning Plant

The President's 1977 Decision excludes the conditioning plant from the description of the approved transportation system. The exclusion stems from the original certificate application which requested certification of facilities commencing at the discharge side of the conditioning plant facilities. The system described in the Decision was necessarily limited to the facilities for which certification was requested. The partnership intends to file an amended certificate application that will include the conditioning plant. The inclusion of the conditioning plant in the system itself is a fundamental part of the agreement between the North Slope producers and the Alaskan Northwest partners. That agreement is the only means available now or in the foreseeable future for providing private financing for the project. As a practical matter, the economic effect of including the conditioning plant in the system is the same as treating the plant as a separately certificated facility and providing a conditioning cost allowance sufficient to provide for the recovery of the gas conditioning cost. Facilities may eventually be added to the conditioning plant that will enable natural gas liquids to be extracted and sold. If so, an equitable allowance would be provided by the Commission in a separate proceeding that would in effect reimburse the natural gas customers for the value of the natural gas liquids extracted from the plant.

3. Evidentiary Hearing Requirement.

The Natural Gas Act may be construed to require a formal, on the record evidentiary hearing by the Commission on each application for a certificate of public convenience and necessity to construct or operate any segment of the ANGTS. The proposed waiver simply eliminates the requirement that such a hearing be held, leaving the Commission with discretion to determine whether such a hearing is necessary. The waiver is consistent with the purpose of the 1976 ANGTA to expedite decisionmaking on the projec The Commission would most likely substitute streamlined rulemaking procedures, with complete opportunity for public participation, on the remaining certificate issues.

4. Authority to Modify or Rescind Orders

The Commission's General Counsel has aptly summarized the purpose of this waiver in a recent legal memorandum. He states:

> "The waiver has a rather singular purpose. It is intended to assure lenders for the project that the income stream which serves as security for their loans will not be reduced below the level necessary to retire the principal of the loan and to pay the interest thereon. It would accomplish this purpose by precluding the Commission from changing the rules of the game, so to speak, in a manner which would undercut the security of the loan. This objective would be achieved by withdrawing from the Commission its authority under the Natural Gas Act to change the project tariffs in such a manner as to reduce project revenues below the level necessary to service project debt. The request for the waiver evidence that certainty of the security is essential, i.e., in this instance that the lenders will rely heavily and to their detriment on the orders of the Commission granting the certificate and establishing the tariffs as preconditions to the sponsors' take down of the construction loans."

5. Regulatory Status as a "Natural Gas Company"

This waiver is technical in nature.

6. Import and Export Authority

This waiver is technical in nature. The rationale was described in the 1977 Decision. Action on the waiver was deferred when Congress passed H.J. Res. 621, Pub. L. No. 95-158, approving the Decision

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7. Billing Commencement Date

The proposed waiver is designed to address two interrelated tariff issues which are not dealt with in the 1977 Decision. Part (a) will enable the Commission to conform the tariff provisions to the tariff approved by the Canadian National Energy Board. The Canadian tariff provides for recovery of the full cost of service for the pipeline in Canada. The proposed waiver recognizes the Canadian decision, while protecting United States natural gas customers from the possibility that the Canadian segment of the pipeline would be completed in advance of the time it would be necessary. Part (b) will enable the Commission to fashion a tariff that will provide an assured source of revenue for the payment of a minimum bill tariff. Such a tariff could conceivably go into effect in advance of completion and commissioning of all parts of the system. The minimum bill tariff would not go into effect before a date determined by the Commission to be the most likely date for the entire pipeline system to begin operation. The proposal would not impose upon an unreasonable natural gas consumers. The principle risk takers would continue to be the project sponsors who would be precluded from realizing any return of or on their equity investment at any time prior to completion and commissioning of the entire system. While the proposal does depart somewhat from conventional financing techniques, it does not represent an unwarranted departure in light of the fact that the banks will be investing unprecedented sums, in many cases up to their legal lending limits, without realizing a rate of return designed to compensate them for taking any risk.

Congreſs of the United States
House of Representatives
Washington, D.C. 20515

September 23, 1981

Dear Mr. President,

We continue to be concerned with the problem of expediting the delivery of the abundant natural gas of the Alaska North Slope to the lower 48 states in a way that is economically beneficial to the American consumer. It is clear that a resolution of this problem could significantly reduce U.S. dependence upon foreign sources of oil. However, imprudent action could result in unacceptable increases in energy costs to the consumer which could impede the economic recovery of the nation.

Recognizing the importance of the question and the complexity of the issues involved, Congress in 1978 enacted the Alaska Natural Gas Transportation Act which authorized and directed the executive to analyze the barriers that might impede the delivery of the gas and to recommend to the Congress waivers of law that might be needed to eliminate those barriers.

We are aware that several months ago the sponsors of the project to build the Alaska Natural Gas Transportation System prepared a list of the waivers of law that they felt would be needed to obtain the necessary financial support to construct a pipeline through Canada to deliver the gas to the lower 48 states. Under the law, the Congress cannot act unless, and until, the Administration evaluates these recommendations and transmits its recommendations to the Congress.

We assume that this Administration shares our concern with the dependence of the U.S. on foreign oil and our desire to expedite the development of domestic energy supplies to relieve that dependence. We are concerned that this Administration has not yet utilized the mechanism that Congress created to advise the Congress on the action that should be taken to make this abundant resource of energy available to American industrial and private consumers in the most economical fashion.

We urge the Administration to act as quickly as possible to prevent inflationary damage that will result from delay and to allow the Congress the time to fully consider its recommendations.

We assure you that our Committees will give full and expeditious consideration to your recommendation.

Sincerely,

JOHN D. DINGELL Chairman Energy and Commerce Committee	MORRIS K. UDALL Chairman Interior and Insular Affairs Committee

PHILLIP R. SHARP
Chairman
Fossil and Synthetic Fuels
Subcommittee
Energy and Commerce Committee

[illegible]

U.S. House of Representatives
Committee on Energy and Commerce
Room 2125, Rayburn House Office Building
Washington, D.C. 20515

September 23, 1981

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

On June 17, the partnership designated to construct and operate the Alaskan Natural Gas Transportation System requested that you recommend to the Congress several waivers of the law controlling the financing and regulation of the pipeline. Later in June, the Chairman of your Cabinet Council on Natural Resources and Environment, James G. Watt, graciously asked us, along with several of our colleagues, to work together in reviewing the various proposed waivers.

We share your commitment to moving ahead with this pipeline under private financing as the surest method to bring over 26 trillion cubic feet of natural gas to market in the lower 48 states. We have long agreed that this project is in the national interest and that its delay will add to its cost.

However, we are concerned that the project will not be "privately financed" if the waiver requests proposed by the sponsors are recommended by you and accepted by the Congress. Rather than securing the financing for the project's construction based on its value as the sole transporter of the Nation's single largest natural gas find, the sponsors are requesting a waiver of existing law to allow "pre-billing" the consumers in the lower 48 States prior to the project's completion and, in fact, whether or not, the project is ever completed. This proposed waiver would transfer the risk of noncompletion of the project to the consumers. Removing the risk to the entrepreneurs and transferring it to the consumers also removes, in our judgment, the necessary element for the project to be fairly termed as having "private" financing.

As we have stated several times before, we draw a distinction between the risk of delay and the risk of non-completion. With a project of this historic size, some delay could be understandable. We are willing to discuss a variety of ways to reduce the eventual cost of the project by arranging some method by which the costs of delay can be borne during any construction delays.

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We are unalterably and unequivocally opposed, however, to any waiver requests which would operate to transfer the risk of non-completion to the consumer.

Under the general guidance of Secretary Watt, we have met several times with our colleagues in the House and in the Senate on this matter. We only wish we could report to you that we have reached a common understanding and a common position. Despite good faith efforts, we have been unable to do so.

We write this letter to you to share our thoughts, and to reaffirm our effort to continue working to reach a consensus on this most important project.

Sincerely,

Jim Broyhill
James T. Broyhill
Ranking Minority Member
Committee on Energy and Commerce

Clarence Brown
Clarence J. Brown
Ranking Minority Member
Subcommittee on Fossil and
Synthetic Fuels

Congreſs of the United States
House of Representatives
Washington, D.C. 20515

July 22, 1981

The Honorable Ted Stevens
United States Senate
127 Russell Building
Washington, D.C. 20510

Dear Senator Stevens:

We deeply appreciate the efforts you have made, and those of your staff, in working with us and our staff on the difficult issues embodied in the proposed waivers of law related to the Alaska Natural Gas Transportation Systems (ANGTS). In the few short weeks during which these proposals have been before us, we have made significant progress. We have been able jointly to solve or avoid many of the serious public policy problems posed by the original proposal without undercutting the viability of the project. This process has brought us to the point that only a few major issues remain. As might be expected, however, these few issues still include those that are the most significant and troublesome. We stand ready to continue to work to resolve these issues.

It must be remembered that in 1977 the President provided in his decision and the Congress affirmed by joint resolution terms and conditions that the sponsors of the ANGTS indicated would be sufficient to allow for private financing and construction. We continue to stand by our decision of that time that under those terms this project is clearly in the national interest. We have affirmed that judgment several times, most recently in a concurrent resolution passed during 1980.

The current waiver proposal, however, fundamentally alters the original nature of the project. Particularly by the proposal that advance billing be permitted for completed sections of the pipeline, but also by the regulatory certainty waivers and others, the agreement that we reached with the sponsors of this project on behalf of American gas consumers would be importantly modified. Significant portions of the risk of non-completion of the project and significant financing costs would be shifted onto those gas consumers. In addition, the ability of their regulators to protect their interests would be simultaneously reduced.

Nonetheless, we stand ready to consider altering the original agreement to make such major changes. Some would use the occasion of the request for these waivers to reject the project altogether--we do not number ourselves among them. To the contrary, it is our desire that the process which has brought us the progress we have already achieved be permitted to continue. Indeed, it should be expanded to include those who would raise the fundamental questions of whether this project remains in the national interest as it would be modified by the waiver proposals.

Such processes take time, of course, and there is the legitimate question as to whether there is sufficient time remaining in this session to bring such a process to the point of success in order not to delay the construction schedule for the project. It is our opinion that there is time, and that, whether or not the time is sufficient, waivers cannot succeed in the House of Representatives unless such a process has taken place. We believe that the surest way to doom the waiver proposals to defeat would be for us to encourage them to be sent forward by the President before the Congress at large has had the opportunity to weigh the difficult questions of whether the value to the nation of this project still makes the cost it now involves worth paying.

We cannot, of course, speak to the procedural or substantive situation concerning these waivers in the Senate, and it may in fact be necessary to their success in the Senate that the waivers be sent forward as soon as possible, although the oppostite situation is true in the House. If you and the President decide that he should submit the waivers in their present form, we will certainly take them up in good faith and will support those which give us no trouble.

Members of our Committee and others have raised several minor but still significant concerns with the waivers beyond those mentioned above. Not all of use are equally concerned by all of them, but these questions must be answered in the House in some fashion before full support could be assured.

We remain determined to seek a resolution of the issues raised by these waivers, and hope to continue consulting with you and the Administration on them. With time, solutions may be found. For example, a billing commencement proposal featuring an escrow account might offer a possible solution to the billing commencement issue. It is our judgment that the current form of the proposal cannot succeed in the House now, but that is not to say that a varied proposal cannot succeed nor that given time, the troubling questions raised by this proposal cannot be satisfactorily dealt with. Thank you again for your patience and cooperation, and we look forward to further efforts.

Sincerely,

John D. Dingell
Chairman
Energy and Commerce Committee

Jim Broyhill
James T. Broyhill
Ranking Minority Member
Energy and Commerce Committee

Philip R. Sharp
Philip R. Sharp
Chairman
Fossil and Synthetic Fuels
Subcommittee

Clarence J. Brown
Ranking Minority Member
Fossil and Synthetic Fuels
Subcommittee

Mo Udall
Morris K. Udall
Chairman
Interior and Insular Affairs
Committee

Manuel Lujan, Jr.
Ranking Minority Member
Interior and Insular Affairs
Committee

Mr. UDALL. We have a time problem. As indicated, under the law we have 30 days to do something on this one way or the other. So we are going to have to expedite the hearings and treatment of these issues.

Today we have a busy schedule on the House floor, and I anticipate interruptions to save the tobacco industry and other important votes from time to time. But we will go forward again tomorrow. I won't be here much of that time. Mr. Sharp will preside over that session.

We have our colleague, the distinguished gentleman from Alaska, Mr. Young, who has a special interest in all of this. I would ask for the opportunity of his going first. I would like to ask our colleagues to defer questioning of him until a later time because we have the Secretary of Energy next on the schedule, who tells me he has to be at the White House for a Cabinet meeting and must leave here by 2:50 p.m.

So we will try to accommodate the Secretary and hope you can get back with us and complete your testimony and answers, if we haven't done so today.

We will also hear from Mr. McMillian today and his group, or if we can't get to them today, we will do it tomorrow.

So, with that understanding, the Chair recognizes the gentleman from Alaska, Mr. Young.

Mr. YOUNG. Mr. Chairman, members of the subcommittees, I thank you. In deference to your suggestion of limited time, I will submit my written testimony for the subcommittees and speak extemporaneously on this important subject.

Mr. UDALL. It will appear in the official record of our hearing.

Mr. YOUNG. Mr. Chairman, this is a historic day. We are here again to discuss an issue we considered in 1976, with the pipeline act itself; and, of course, in 1977 when President Carter sent down the decision and report on ANGST.

I think the questions raised by Mr. Sharp, yourself, and Mr. Brown are very valid. More than that, I think we should recognize as a committee and as a Congress that this is a very important issue to the national security, to the supply of national energy, and to future generations of America.

I want to stress again that this is a national issue. This is not necessarily an Alaskan issue. I was on the other side of this issue during the great battle over routes to be chosen between the three—the El Paso route, northwest route, and Arctic route. I lost that choice and have been diligently supporting this proposal, as the Congress has.

We have voted now three times on whether it should go through Canada. We have supported the Canadian involvement in this line. More than that, this Congress has made a commitment to deliverance of the great resources of the Prudhoe Bay field to the U.S. citizens.

You are going to hear much during this future debate about the cost of prebilling, and why finances haven't been raised. I am sure there are experts better than myself to answer those questions, but I think again members of the committee have to keep in mind the arguments against this waiver package are similar to some of the arguments heard against the trans-Alaska oil pipeline

A cost to the consumer is in this waiver package, that is true, but it is in fact included in the cost of imported oil to the consumer.

I don't think we should be shortsighted. I think we have to look to Alaska as the great resource base that can supply clean, cheap fuel to the United States not for 25 years that this pipeline is projected on, but for 100 years.

Most of you may be well aware in the Prudhoe Bay area we have the Arctic wildlife range that will be unquestionably opened someday. We have already Beaufort Sea, which has vast quantities of gas, pet 4, and other areas that can utilize this pipeline.

That is important if it is in place. It has to be in place. There will be a short-range cost to consumers, yes, but in the long range it will provide a very cheap, reliable source of gas.

It is my belief that if this waiver package is not passed, the construction of the pipeline will not take place and consumers in the long run will pay a great deal more, as they are doing now, for the high OPEC price of oil.

So, I urge the subcommittees to listen to the gentlemen who will be before you, including the Secretary of Energy, the gentlemen involved in the direct construction of the pipeline, the financial community, and the other members that know the intricacies that are presented by this waiver package.

Again, let me stress, Alaska has the resources for the Nation. Alaska wants to deliver those resources to the Nation. But if the pipeline is not built, then we have no other alternative than to find and develop a system for delivery of gas to the United States and other parts of the world.

I am urging you, these subcommittees, to bring this waiver package to the floor. Hopefully, through the efforts and wisdom of these subcommittees, the passage of this waiver package will take place and this great project for the people of the Nation will go forth. Then the Nation will not be dependent again upon those foreign countries which have held the sharp ax over our heads.

Thank you, Mr. Chairman and members of the subcommittees. If there are any questions of the subcommittees, I would gladly answer them at this time.

[The statement of Mr. Young follows:]

STATEMENT OF DON YOUNG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ALASKA

Thank you, Mr. Chairman. I appreciate being given this opportunity to make some brief remarks before these distinguished subcommittees on the proposed waiver of provisions of the Alaska Natural Gas Transportation Act.

Because of time limitations, I will confine my remarks to the resource potential in Alaska which would be tapped by the construction of this pipeline. The merits of the waiver proposal itself will be outlined by Secretary Edwards and other distinguished witnesses who will take part in these hearings.

I welcome the effort being made by you and the other members of these subcommittees to explore the issues raised by the waiver proposal. These hearings will provide a forum for the full expression of concerns of all parties interested in the operation of the Alaska gas pipeline.

As many of the members of these subcommittees know, Congress has long recognized that construction and operation of an Alaskan natural gas pipeline is in the national interest. Commitment to this idea has been sustained through the original pipeline authorization, the pipeline agreements with Canada, approval of President Carter's decision, and passage of a resolution in support of the pipeline last year.

The basis for this commitment has been the need for a means to tap the tremendous resource potential in Alaska. This need has not diminished.

I believe that this fundamental aspect of the project should be kept in mind as the deliberations on the waiver proposal continue. There are an immense amount of natural resources in Alaska which are ready to be brought to market and benefit all Americans.

The north slope of Alaska holds the largest proven reserve of natural gas ever discovered in North America. The Prudhoe Bay reserve alone represents one-eighth of the Nation's proven reserves. This reserve would be tapped immediately when the pipeline is constructed. The initial operation of the pipeline, using only the Prudhoe Bay reserve as supply, would provide 2 billion cubic feet of natural gas per day. This would supply at least 5 percent of the Nation's estimated demand over the next 25 years and would reduce the Nation's imports of oil by 400,000 barrels per day. It is worth emphasizing that Prudhoe Bay is a proven reserve, waiting to be tapped.

The pipeline would also provide a means of access to other natural gas reserves in Alaska which have yet to be developed. It is estimated that the north slope of Alaska holds 200 trillion cubic feet of natural gas and could well turn into the largest supply of natural gas resources in the Nation. Also, the Department of the Interior plans to conduct 16 lease sales on the outer continental shelf off the Alaska coast. Seventy percent of all OCS lease sales to be conducted over next 5 years will be in Alaska. The on-shore areas of Alaska also hold the promise of more natural gas discoveries. As you can see, Alaska represents a tremendous resource potential for America which is waiting to be tapped.

The operation of the trans-Alaska oil pipeline provide as an example of the benefits of developing Alaska's resources. The taps line supplies 1.5 million barrels of oil per day and has developed into an important element in the domestic energy supply. It is a safe, sure source of American energy supplies and has proven to be a good long-term investment in America's resource potential.

It is clear that actions taken by these subcommittees on the waiver proposal will have a substantial impact on the Nation's future energy supply. I believe that failure to build this pipeline would jeopardize the Nation's ability to tap its resources in Alaska and would continue the Nation's gamble on the continued supply of oil from the Mideast. And it must be recognized that dependence on foreign oil is a gamble. The risks of this gamble must be considered when there are American energy projects which are ready, willing, and able to supply the Nation's energy needs. The Alaska natural gas transportation system is one such project.

I urge the members of these subcommittees to carefully consider all of the testimony to be preserved against this background of the resource potential in Alaska. I believe that the testimony presented at this hearing will demonstrate this waiver is necessary to bring this potential to the benefit of the rest of the Nation. Although it is difficult to measure the value of knowing that some of the Nation's energy needs are supplied by safe, sure, sources of domestic fuel, the value of this energy security must be kept in mind in determining the benefits of this project.

Thank you.

Mr. UDALL. We thank the gentleman for his cooperation.

In light of my previous announcement, I am going to ask the gentleman to be available, and we will ask him questions later on.

Mr. YOUNG. Mr. Chairman, as you know, I am always available on things that concern the Nation and, more than that, Alaska. Thank you very much.

Mr. UDALL. We will get some real zingers of questions ready for you.

We will now hear from the Secretary of Energy, the Honorable James Edwards.

STATEMENT OF HON. JAMES B. EDWARDS, SECRETARY, DEPARTMENT OF ENERGY, ACCOMPANIED BY WILLIAM NISKANEN, MEMBER, COUNCIL OF ECONOMIC ADVISERS

Secretary EDWARDS. Mr. Chairman, before I start, I would like to introduce Mr. R. Tenney Johnson, General Counsel, Department of

Energy, on my right, and Mr. William Niskanen, member of the Council of Economic Advisers, on my left.

Mr. Chairman, I appreciate this opportunity to meet with you and the subcommittees today.

I am pleased to appear before you to discuss the President's waiver proposal for the Alaska natural gas transportation system, or ANGTS. The President submitted this proposal to the Congress on October 15, 1981. I am here to support this waiver proposal and to urge you to consider it carefully and expeditiously.

In the winter of 1967–68 a wildcat drilling rig struck a large oil and natural gas reserve at Prudhoe Bay on the North Slope of Alaska. The proven natural gas reserves at Prudhoe Bay are estimated at 26 trillion cubic feet and represent approximately 13 percent of the present total U.S. proven reserves.

When ANGTS is completed, these reserves are expected to supply initially approximately 5 percent of total U.S. gas consumption. There are also estimated undiscovered recoverable resources of around 100 trillion cubic feet of natural gas in Alaska, of which a sizeable portion is believed to lie on the North Slope.

Congress recognized the importance of bringing this gas to the lower 48 American market by enacting the Alaska Natural Gas Transportation Act of 1976. That statute provided a special expedited procedure for designation and approval of a system to bring Prudhoe Bay gas to the lower 48 States, thereby bypassing the normal, drawn-out regulatory process.

Under procedures established by ANGTA, President Carter, in the decision and report to Congress on the Alaska Natural Gas Transportation System, in September 1977, designated the Alaska highway route as the route for the pipeline. Congress incorporated that decision in Public Law 95–158.

The Alaska pipeline segment of ANGTS, to be constructed and operated by the Alaskan Northwest Natural Gas Transportation Company, will be a 745-mile pipeline from Prudhoe Bay running south along the existing oil pipeline right-of-way and then southeast along the Alaska highway to the Canadian border. A gas conditioning plant necessary to prepare the gas for entry into the pipeline will be located at Prudhoe Bay.

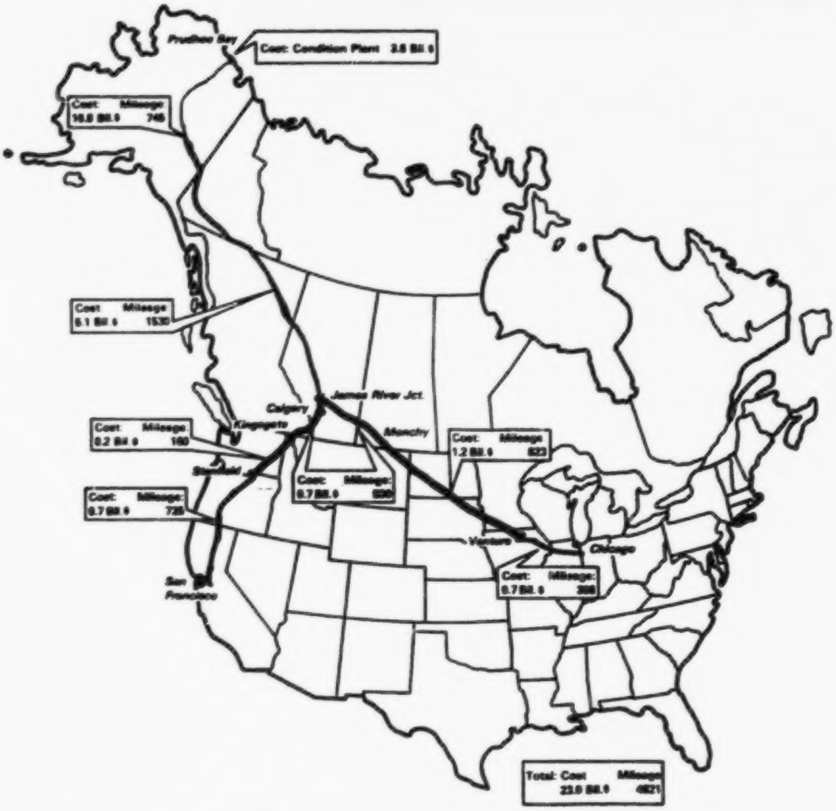
There will be three other segments of the Alaskan natural gas transportation system. The Canadian pipeline segment will run from the Alaska-Yukon border to central Alberta, a distance of approximately 1,500 miles. From central Alberta the pipeline will fork into two legs. The western leg will carry gas to the San Francisco area while the eastern leg will carry gas to the Chicago area.

The two legs are being largely prebuilt to carry Canadian gas to the lower 48 States. The prebuild segments are now under construction and initial deliveries through the western leg have begun at the rate of 240 million cubic feet per day. The complete ANGTS would cover approximately 4,800 miles.

Mr. Chairman, if you would permit me, I would like to just refer to the chart. Right up in this area where the pipeline begins is where the conditioning plant will be. It will come down along the present oil pipeline and cross into the Yukon at this area.

[The chart referred to follows:]

ALASKA NATURAL GAS TRANSPORTATION SYSTEM


Prudhoe Bay
Cost: Condition Plant 2.6 Bil $
Cost: Mileage: 10.8 Bil $ 745
Cost Mileage 6.1 Bil $ 1530
James River Jct.
Calgary
Kingsgate
Monchy
Cost: Mileage: 0.2 Bil $ 160
Stanfield
Cost: Mileage: 0.7 Bil $ 530
Cost: Mileage 1.2 Bil $ 823
Cost: Mileage: 0.7 Bil $ 720
Ventura
Chicago
Cost: Mileage: 0.7 Bil $ 366
San Francisco
Total: Cost Mileage 23.0 Bil $ 4821

✱ Cost Estimates (1980 Dollars) Were Provided by Project Sponsors.

✱ Mileage Numbers Refer Only to New Pipeline Mileage.

Mr. **Edwards**, The black line is the Canadian section. These two will fork at the James River junction, with one going down across the border between Canada and the United States into Chicago and this one going down across the border into San Francisco.

The Western leg is already delivering gas. The Eastern leg is under construction.

I happened to be out in South Dakota pheasant hunting the other day and we crossed the construction there. I was informed that the workers came in, laid that pipeline, and got out so quickly that very few people knew they were even there—a rather interesting reaction of the local people in South Dakota.

The sponsors have estimated the direct construction cost of all segments of the ANGTS to be around $23 billion U.S. dollars. Let me point out that the administration has not performed a cost estimate of its own nor has it conducted a final evaluation of the sponsors' estimated costs.

The $23 billion figure includes approximately $3 billion for the prebuild segments now completed or under construction. These figures are in 1980 U.S. dollars. The initial cost of the Alaska pipeline segment is estimated to be approximately $10 billion. The gas conditioning plant segment is expected to cost at least $3 billion. The Canadian pipeline segment is expected to cost at least $5 billion.

Both President Carter and President Reagan have taken a personal interest in the ANGTS. President Carter advised the Canadians that the United States supports construction of the ANGTS. President Reagan recently stated in a message to Prime Minister Trudeau regarding this proposed waiver:

> My Administration supports the completion of this project through private financing, and it is our hope that this action will clear the way to moving ahead with it. I believe that this project is important not only in terms of its contribution to the energy security of North America. It is also a symbol of United States-Canadian ability to work together cooperatively in the energy area for the benefit of both countries and peoples. This same spirit can be very important in resolving the other problems we face in the energy area.

In submitting the waiver proposal to Congress, it is the President's intention to remove certain legal obstacles to the private financing of the pipeline. This will allow free market forces to operate and thereby determine whether this project will become a reality.

Because of the extraordinary dimensions and complexity of the ANGTS, Congress envisioned that a specific waiver of law might be necessary to remove obstacles to expeditious construction and initial operation. The waiver proposal is submitted for precisely that purpose pursuant to section 8(g)(1) of the act.

The President has submitted a waiver proposal dealing with several provisions of law. Some aspects are entirely technical, and I do not propose to discuss them here. They are discussed in the President's submittal.

Before moving to the specific elements of the waiver, however, I wish to emphasize why we are taking this unusual step. The purpose of the waiver proposal is to facilitate private sector evaluation and financing of the project. Absent this waiver proposal, we believe the pipeline cannot be privately financed.

There are three major elements of the waiver proposal to which I now turn.

Section 1, paragraph 3 of the President's decision provides that ownership participation in the pipeline is open to anyone except producers of Alaska natural gas. Section 5, condition IV-4 of the decision—and when I say decision, Mr. Chairman, that is President Carter's decision—contains a similar prohibition.

Section 5, condition V-1 provides that producers of significant amounts of Alaska natural gas cannot participate in ownership of the pipeline. However, they may provide guarantees for project debt. This latter condition also excludes the producers from holding any equity interest in the project, having any voting power or having any management control in the project.

President Reagan's proposal will waive these provisions to allow producers of Prudhoe Bay gas to participate in the ownership of the Alaska pipeline segment of the ANGTS and the gas conditioning plant segment. The scope of their role will be determined in negotiations by the interested private companies.

I emphasize that there is an important proviso to this waiver provision to meet antitrust concerns. Any agreement on producer participation in the ANGTS is to be approved by the FERC, after consultation with the Attorney General, and upon a finding by the FERC that the proposed agreement would not, (1), create or maintain a situation inconsistent with the antitrust laws or, (2), create restrictions on access to the Alaska pipeline segment by other shippers or place restrictions on capacity expansion. We believe these safeguards provide sufficient Federal review to eliminate any possible antitrust violations.

The second important part of the waiver concerns the gas conditioning plant segment. Section 2, paragraph 3, first sentence of the President's decision excludes the gas conditioning plant as part of the ANGTS and from the final certificate to be issued by the FERC for the system.

However, the President's decision does not exclude a payment by gas customers for conditioning costs. FERC also has not yet made a final ruling concerning payment for conditioning costs. To resolve this issue, we propose to waive the provision that excludes the gas conditioning plant from the pipeline system.

The gas conditioning plant would, of course, be subject to final FERC certification as part of the pipeline. The cost of the plant is estimated to be at least $3 billion. As a part of ANGTS, the cost of the conditioning plant would be recoverable through FERC-approved tariffs along with pipeline construction costs.

The final element of the waiver proposal I want to mention involves the issue of when billing for the cost of ANGTS may commence.

Section 5, condition IV-3 of the President's decision provides that consumers of Alaska natural gas cannot be charged any amount for the cost of the ANGTS at any time prior to completion and commissioning of all segments—American and Canadian—of the system.

We propose a waiver of that provision so that the FERC could allow billing for the ANGTS prior to the time the whole system is completed and gas begins to flow, under certain specified, limited circumstances.

Under this waiver element, the system would be divided into three parts for billing purposes—the Canadian pipeline segment, the Alaska pipeline segment, and the gas conditioning plant segment.

With regard to the Canadian segment, this waiver element would permit recovery of the full cost of service upon completion and successful testing of that segment. However, no billing could commence before a date established by the FERC, in consultation with the Federal Inspector, in issuing a final certificate for the pipeline as the most likely date for the pipeline to begin operation.

With regard to the Alaska pipeline segment, this waiver element would permit a recovery of a minimum bill: that is, actual operation and maintenance expense, actual current taxes and amounts necessary to service debt, upon completion and successful testing of that segment.

As with the Canadian pipeline segment, billing could not begin before the date set by the FERC as the date for the ANGTS to begin operation. Similarly, recovery of a minimum bill could occur for the gas conditioning plant segment upon completion and successful testing of the plant, but not before the completion date of the pipeline system, as established by the FERC.

I want to emphasize that this billing element is subject to important safeguards.

First, the FERC is not required to allow precompletion billing. For all three segments individually, it is simply authorized to do so.

Second, cost recovery cannot be had before the date that the FERC has determined as the most likely date the whole system would begin operation. That limitation on recovery reduces the possibility that billing would, in fact, commence before completion and operation of the entire pipeline.

Finally, with regard to both the Alaska pipeline segment and the gas conditioning plant segment, only a minimum bill could be recovered prior to the flow of gas through the pipeline.

Under these circumstances, there would be no return on equity. We believe this would provide a strong financial incentive for the sponsors to persevere and to complete the project.

In conclusion, Mr. Chairman, it is clear that the project cannot be privately financed without this waiver proposal. The President's message to the Congress makes clear his intention, with the approval of Congress, to remove certain legal obstacles to private financing.

As the President stated, the project is a symbol of United States-Canadian ability to work together in the energy area.

That concludes my prepared testimony. I will be pleased to answer any questions.

Mr. **Udall**. In light of our time constraints, we will operate under the 5-minute rule.

I have three quickies I hope we can handle in 5 minutes.

In the light of the concern about the budget, and inflation and deficits and all of this, what is the impact, what would be the general budget impact if we approved the waivers and the project goes forward as you and the President anticipate.

Mr. Udall. Yes; the budget this fiscal year and coming ones, for example. Can you give me a ball-park figure on this? What is the exposure of the government?

Secretary Edwards. Mr. Chairman, there would be no exposure to the government.

Mr. Udall. No additional expenditure?

Secretary Edwards. None whatsoever.

Mr. Udall. All right.

Secretary Edwards. Except financing of the Federal Inspector. Of course, that would be there.

Mr. Udall. We have been extremely fortunate that way to find that our great neighbor to the north, the Canadians, and great neighbors to the south, Mexican people, have had very good luck in discovering where some of the oil and gas of the world are located.

We haven't always handled our neighbor's concerns with a great deal of sensitivity, I must say.

Could you outline for me what we might anticipate from the Canadian Government or Canadian people if this project falls through because of the unwillingness of the Congress to provide the additional inducements in the President's package?

Secretary Edwards. Mr. Chairman, I think our relationships would be further strained if this waiver were not approved.

Mr. Udall. I have been impressed through the whole history of this—I guess these two committees have been involved in it now for a long time—with the real efficiency of the Canadians and their willingness to understand the American political situation, the slowdowns we have had here.

But I certainly share your views. It was a miracle to me, in fact, in 1976 and 1977 that they could within 18 months make major decisions relating to the Canadian native people and right-of-way problems and all the rest.

While I haven't finally made any judgment on the specific waivers, I would think long and hard before I would kick the Canadians in the teeth in the way that might be interpreted if we do nothing in this regard.

My final question would relate to overruns. There is a great cynicism that developed around the Alaska oil pipeline. It started out at $2 or $3 billion and we ended up three, four, five times that amount of money.

What causes this? Why are we talking $23 or $25 billion now when we were talking a half or a fourth of that just a few years ago? What goes wrong with these projects? Is this endemic to major energy projects or is there something special here that maybe we could correct?

Secretary Edwards. Mr. Chairman, I think in the early days the technology was not as well perfected as it is today. Of course, inflation is running the cost of everything up. The inflation of the cost of laying pipeline has been greater than normal inflationary rates.

I think it is just a combination of several factors that has caused them to run up. Poor management has something to do with it, too, but the two companies that are proposed to build these pipelines are very well-managed companies of good repute, and I doubt if we will have overruns.

I think the fact that the lower 48 pipeline was built under budget and in less time than they had anticipated indicates the technologies and companies building these pipelines are of quality.

Mr. UDALL. I am going to be watching these hearings for further light on that particular question, and maybe there is some role we in Congress can play to expedite these projects.

I had a great idea a year ago, a year and a half ago. Mr. Brown helped me a great deal on fast track. We eventually got torpedoed down—that is right, as Mr. Brown says, more like run over by a steam engine. Fast track turned out to be kind of a slow track, then no track at all when it was sunk without a trace in the proceedings of the House. Go ahead.

Secretary EDWARDS. One way to speed this up would be to pass this waiver package in a hurry and get it on up there so they can start construction.

Mr. UDALL. All right. With Christmas coming on, we will see what we can do for you.

The gentleman from Indiana, Mr. Sharp.

Mr. SHARP. I thank you, Mr. Chairman.

Mr. Secretary, there have been a lot of rumors in the past and around that the administration is really just going to lay this package up here and see how it goes, and has no real commitment to it. I wonder if you can lay that to rest. Is the administration going to come up here and fight for this proposal? I know they are skillful fighters for things they want on Capitol Hill. What is the situation?

Secretary EDWARDS. This President is dedicated to getting this waiver package through the Congress. We hope we will have complete cooperation. We hope it will not be a fight. I think the Congress will see the need for this, and I hope, pass it in an expeditious manner. We are dedicated to getting the waiver package passed.

We are dedicated to the private sector building this, not the Government building it. I think we are just removing the obstacles to getting that accomplished.

Mr. SHARP. Mr. Secretary, my colleague from Arizona asked the question about the result of a no vote on our relation with Canada, which is a very important one. I think we can appreciate the commitment the Canadian Government made in getting involved in this project. Would you like to give us further background on what you believe the situation would be if Congress voted no in terms of gas supply and production or any other variables your Department would be concerned about?

Secretary EDWARDS. Mr. Sharp, I would not be able to evaluate the reaction if the package were not passed. But if the waiver package is passed and the project comes to fruition, of course, it will be the equivalent of 400,000 barrels a day. So in a positive light, I think it is very important that we get this gas down so we can have this resource available to our citizens and not be so dependent upon foreign sources of energy in future years.

Mr. SHARP. Mr. Secretary, later in the hearing there will be some witnesses who will maintain there are other alternatives and that this is an uneconomical one, or that there is a more economical alternative. So it is six to one, half a dozen to the other, what difference does it make. That argument will clearly be made in this debate. I hope you will help us understand as to what the consequences would be of saying no to this project.

Is there something else in the wings we could do instead of this that would move us forward, or are we in a deep hole we can't get out of at that point?

Secretary EDWARDS. Mr. Sharp, there have been extensive studies of a variety of methods of getting this resource down to the lower 48 States, even as far as looking at under-the-Arctic ice tankers, submarine tankers, to bring the resource down. Of all the studies that have been done, the most practical and most economically feasible solution is the bringing down the gas by way of a pipeline similar to this pipeline.

Mr. WEAVER. Will the gentleman yield?

Mr. SHARP. I believe we have very limited time here, so I will not at this point.

Mr. Secretary, I would finally like to ask you about the Department's estimate on whether this gas will be economical by the time the pipeline is built. One question that continues to arise is, given some estimates that the price could be as much as $15 per thousand cubic feet in the first year or two of this gas, as to whether or not that can be economical in competition with either other gas sources or alternative fuels, and whether or not it will be economical should the administration present and the Congress adopt the decontrol of old natural gas.

Secretary EDWARDS. Mr. Sharp, I don't think there are any studies—or at least I don't have at my disposal—nor have we done any in the Department—of whether it is economical or not. We feel, with the passage of the waiver, the private sector will be able to evaluate whether this gas is marketable or not. If it stands on its own merits, it will be built. If it doesn't, it won't be built. But we feel that should be left up to the private sector and not up to us in Government to determine that.

Mr. SHARP. Will the private sector need to be making that decision on the basis that the administration is advocating decontrol of old natural gas? Will that be the intended policy of the administration?

Secretary EDWARDS. Mr. Chairman, I think that they would probably make that decision both ways and evaluate it. I think in the latter years of the 1980's it would probably be less economical if we decontrolled. In the outyears it would be more economical. Over the lifetime of the pipeline I think it would be much more economical if we deregulated natural gas. This is based on some cursory studies that we have done.

Mr. SHARP. Thank you, Mr. Secretary.

Mr. UDALL. The gentleman from Ohio is recognized for 5 minutes.

Mr. BROWN. Mr. Secretary, doesn't the waiver package, in effect, leave the project in the hands of the bankers now as to whether or not it is going to be viable, and they have to look at it and assess the price of gas in the future and prospects for the pipeline coming in, as Mr. Udall raised the question, within reasonable cost bounds and so forth? And, in effect, if the waiver package is approved by the Congress, then the bankers just make a judgmental decision as to whether or not they really can get from the consumers sufficient money to pay the interest on the debt and ultimately pay off the amount of the debt? What assurances have you that if the waivers are granted we will ever get a pipeline?

Secretary EDWARDS. Mr. Brown, I have no assurances at all. But I can assure you that we will never get a pipeline if the waivers are not granted.

Mr. BROWN. I think everybody concedes that. I don't want to ask too many questions. Everybody concedes that. The real question is whether or not we will get it if the waivers are granted. Are there any written—has anybody said anything? We will have to ask this question of the bankers. How do we understand that?

Secretary EDWARDS. I understand there are some bankers and producers to follow us, and some of the sponsors. I think you should ask that question of them. I think that falls into their purview rather than government's purview.

Mr. BROWN. But like any good banker they don't put anything in writing, is that right? Mr. Secretary, this is a big project in terms of dollars, $40 billion of them; therefore, major diversion of U.S. economic assets or resources. You could have 100 $400 million projects you could pay for using the money in a different way. I saw a presentation this morning that would cost $2.5 billion to rebuild and modernize the Ohio River lock and dam system so that you could make it consistent throughout and speed up the transportation of things on that river. And you could have, maybe, 16 of those projects. In a sense, we could tax consumers of gas and direct the funds to the support of the social security system, or building the B-1 bomber, or buying scrubbers for all the coal-fired plants, or something else. Have you given thought to alternatives of diverting funds that way?

Mr. NISKANEN. Mr. Brown, we are proposing change in the basic law within which private bankers and investors will make their decision. I think if this proves to be viable with the pipeline it will be an appropriate diversion of resources from other uses. It is a very large amount of money. I think it is appropriate to focus it in terms of constant dollars, and the constant dollars for the Alaskan and remaining Canadian parts of the system are around $20 billion in 1980 dollars. So that represents, oh, maybe one-twentieth of the gross flow of savings in the United States on an annual basis. There is lots of money available if this does prove to be a viable project.

Mr. BROWN. When you say it is desirable, do you mean from a social standpoint, from an energy conservation standpoint, from the standpoint of security, all the above? Which specifically?

Mr. NISKANEN. Once the appropriate laws are in place, the viability, I think, should be and will be determined by private investors. We are prepared to accept whatever is the outcome of that process if the basic law under which that process operates is the right one.

Mr. BROWN. Finally, if the private investors are wrong, and they go ahead and put up the money, and the price of gas from the Alaskan natural gas pipeline comes in so high that based on that and, perhaps, based on the cost of the pipeline, cost overruns, and so forth, that no one really wants to buy that gas and decides, well, it is cheaper right here in River City to convert to oil or to put in a coal-fired plant with a scrubber, and the gas consumers don't pay the bill, who gets the cold check?

Mr. **Niskanen**. Gas consumers will pay for the pipeline if this pipeline is not completed. There is a very large incentive, however, to complete the pipeline. The equity owners of completed segments, and both the equity and debt owners of uncompleted segments will bear that part of the cost.

Mr. **Brown**. I hope you didn't miss my point now. I assume we complete the pipeline and that the cost of the gas in 1987 is so high that consumers decide not to use gas and switch to coal or oil, and there are not enough consumers paying the tab on the pipeline that the pipeline is viable, and you have a lot of New York bankers in with their cups, saying we made a bad judgment and it didn't work out.

Mr. **Niskanen**. The cost will be borne by the shippers and ultimately the consumers of all companies that contract for this gas. That group of people will not disappear because they use gas, of course, from many other sources. It is important to recognize that once the shippers contract for this gas it becomes a fixed charge to these companies, and they do not pay for it as a function of the amount of gas they use. But it becomes a fixed monthly bill. That will, once that happens, it is very likely that gas will flow from Alaska, even in the event that the fixed charge is something that they may have regretted.

Mr. **Brown**. Thank you, Mr. Chairman.

Mr. **Udall**. It is kind of difficult here to alternate between the Parties; the two parties on the two committees. I will do my best. I generally operate on who got here first. I haven't the foggiest idea with regard to my own committee. Maybe we will go on seniority.

Mr. Gejdenson, were you here first?

Mr. **Weaver**. Yes; or me.

Mr. **Udall**. All right. Mr. Gejdenson, the gentleman from Connecticut.

Mr. **Gejdenson**. Thank you, Mr. Chairman.

Mr. Secretary, it troubles me that every time I see projects that are basically regulated getting into trouble, that suddenly we go to suggestions that we start charging the consumers for construction work in progress. It seems to me that you can say that you are now letting private industry go take over the program, but what you are essentially doing is you are taxing people for a service that they are not getting. And if you were so inclined, you could simply just have the general revenues pay for completion of the pipeline and at least let the consumers own it rather than let the consumers be taxed by the companies instead of the Government and then the companies end up owning the pipeline.

It seems to me that what you are doing is you are not dealing with the marketplace. If you are admitting that the marketplace isn't going to work, that is one thing. But I think it is wrong to say that you are going to let the free market and competitive system pay for this program. As soon as you are billing for construction work in progress—and President Ford suggested that on nuclear power plants—we are now getting it suggested as the way to get this proposal paid for—that you are really not dealing in the real world. Because if you were out in the private industry and wanted to build something, what you do is you get investors to believe that that is a viable option, when you are dealing in a regulated industry. You attract the money that way, and you build it. Once it starts producing something, the consumers pay for it.

Secretary **Edwards**. Mr. Gejdenson, this is really not a construction work in progress situation. Construction work in progress is, for example, if a utility company starts to build a generating plant and the day they lay the first brick they start then charging the potential consumers before work is completed for that project. That is not strictly the case in this instance.

Mr. **Gejdenson**. This is a delayed construction work in progress?

Secretary **Edwards**. No, it really isn't even that. It is a precompletion billing in case one or two of the segments of this project are completed before the other segment is completed. And this only occurs after a date certain has been established by FERC, and it has to be certified by the Federal Inspector that in fact that segment of the project is completed. Then and only then are the consumers requested or required to pay before they start getting services, so to speak, from the pipeline. But this is just an insurance program. This is an unusual project. It is an insurance program that lets the producers, the pipeline companies and the consumers benefit from this. They are getting the benefits, so certainly they should each take some of the risk. So they are taking a portion of the risk. The producers and the pipeline companies are also taking a portion of the risk.

Mr. **Gejdenson**. I think we have basically said the same thing. You have just said it from a different perspective, and I understand that. But what the bottom line is, that if FERC, which has through recent decisions, or at least statements, indicated a willingness to take a look at construction work in progress, picks a date, 1997, for example, that the pipeline is going to be completed. If it is not completed by then, or if it is never completed, the consumers, as if they were being taxed by big Government, will pay for that pipeline and get no benefit until either the Congress or somebody challenges that system. And I don't mind this committee taking a look at doing that, but I think we ought to know what we are doing.

Let me ask you one last question. Have you taken a look at the effects of the Reagan tax cuts for industry and how they may, under the present law, give business any new advantages or any new strength to invest in the present system? I mean with the accelerated depreciation or any of the other kind of breaks we have given the gas and oil companies, shouldn't we be expecting them to take some of the risk and not simply ask the consumers to take the risk?

Secretary **Edwards**. Mr. Gejdenson, I am sure there will be some advantages under the tax law. That is what the economic recovery program was all about, to give some advantages so we could get people back to work again in this country. But I have not looked at those studies at all.

Mr. **Gejdenson**. Maybe we ought to look, if there is enough incentive in changing the depreciation and other benefits to oil companies, that they will now have the capital to risk. My feeling is, if the consumers are going to take the risk, then the consumers ought to own the pipeline in some way. If the company is going to take the risk, then they have a right to own the pipeline. It seems to me we are setting up a situation where, because of the economics of the situation, it is now a real questionable investment on the part of the oil companies or energy companies. The market has gotten a little soft, so they don't want to take the risk. We are trying to find a way to make the consumers pay for it. But the end result is that they are still going to have the facility.

Secretary EDWARDS. Mr. Gejdenson, the participants of the pipeline and producers of the gas are putting up $7.5 billion of their own money, so the consumers are not taking the full risk at any rate.

Mr. GEJDENSON. That is an impressive amount of money but there is still a lot to go into it. You were about to say something?

Mr. NISKANEN. I think it is important to keep these concepts clear. There will be no advanced billing if both sections——

Mr. GEJDENSON. But once you have decided there will be advanced billing under some set of circumstances you have violated what we have done with utilities through today, that there is no construction work in progress. You can't say we are not giving them construction work in progress unless A, B, or C happens. Construction work in progress means we are not getting gas through the pipeline but we are paying for it. That situation can occur under what you are suggesting.

Mr. NISKANEN. Literally, sir, there will be no financing of any construction in progress. The only advanced billing would be for components of the system that have been already completed if other sections have not been completed and it is after the date certain. So literally there would be no financing of any construction that is in progress.

Mr. UDALL. The gentleman's time has expired. The Chair recognizes arrival of our distinguished colleague, the chairman of the full committee, Mr. Dingell.

Mr. DINGELL. Mr. Chairman, I will await my turn. Thank you.

Mr. UDALL. Who on the minority would be next? The gentleman from California, Mr. Dannemeyer.

Mr. DANNEMEYER. Thank you, Mr. Chairman. Assuming, Mr. Secretary, the waiver package is approved, any investor who would be looking at this in terms of committing the resources that we are talking about is going to be asking a very relevant question. That is, what is going to happen to natural gas prices in this country? A prospective investor in this project has what you might call a vested interest in low prices for natural gas coming from the lower 48 States for obvious reasons. It provides a better base for roll-in purposes to assure the economic viability of this project. I am deeply concerned about that because I am afraid the argument will be made that if we pass this waiver package we are expanding the constituency in this country that is going to be having a vested interest in continuing price controls on natural gas. That deeply concerns me because I think we are working at cross purposes.

Now, another thing that bothers me is that you are the chief spokesman for this administration for energy policy for this country. You have not come, initially, to this committee asking for decontrol of natural gas prices, which, frankly, I wish you had done first. You come here asking for this waiver package. Now if you were to come here asking for decontrol of natural gas prices, we could point out the evidence indicates we can anticipate an expansion of domestic supply of up to 25 percent over the next 4 years if we immediately deregulated the price of natural gas. Now that is dramatic. Contrasting that increase of projected supply with the 5 percent we are talking about from this project, I find I am a little puzzled by priorities. We are being asked to possibly stick it to the consumers with this project for an increase of 5 percent in the quantity of natural gas at a time when we are perhaps not giving the attention to decontrol, which would increase our domestic supply of natural gas by 25 percent at no cost to the Government. There would be a cost to consumers, of course, with the increased price that would take place. But would you address yourself to that question that I am puzzled with, sir? Are you asking this Congress to expand the constituency that has a vested interest, perhaps, in continued price controls on natural gas?

Secretary **EDWARDS**. Mr. Dannemeyer, our studies show that the economics of this pipeline are improved over the life of the pipeline if we have decontrol. I hope that we can have both by the time this pipeline comes on line, and I am sure that that decision should be rightfully made by those who are going to finance this pipeline. I am sure they have economists in those big banks who that look at things like this, and I am sure they are going to have independent studies as to what the effect would be of decontrol or nondecontrol. But I hope that by the time this pipeline comes on, we will have had decontrol of natural gas for a long time. With your help and help of the Congress, we will have that.

Mr. **DANNEMEYER**. For whatever it is worth, this Member of Congress is privileged to have a vote on this issue. This Member of Congress is deeply committed to the concept of immediately deregulating natural gas prices for the increased supply it will bring to this country. If that has an interest to you on the issue of the waiver package, I suggest you give it consideration.

Secretary **EDWARDS**. Mr. Dannemeyer, I am in complete agreement with what you say.

Mr. **UDALL**. The gentleman from Oklahoma, Mr. Synar.

Mr. **SYNAR**. Thank you, Mr. Chairman.

Mr. Secretary——

Mr. **UDALL**. I think what I am going to do, I am going to play leapfrog with Mr. Sharp. I will go vote now and try to get back in time for you to go vote.

Mr. **SYNAR**. Mr. Chairman, I would ask unanimous consent at this time to enter into the record a Wall Street Journal article of July 13, 1981.

Mr. **SHARP**. Without objection, so ordered.

[The article referrred to follows:]

[From the Wall Street Journal, July 13, 1981]

WHITE HOUSE WON'T SUPPORT MAJOR ASPECTS OF FINANCING PLAN FOR ALASKA GAS PIPELINE

(By Andy Pasztor)

ANCHORAGE, Alaska—Plans to build a natural gas pipeline linking Alaska with western Canada and major U.S. markets have had more setbacks, this time primarily at the hands of the Reagan administration.

Energy Secretary James Edwards said Friday that President Reagan won't support the $35 billion project if its sponsors insist that the "consumer shoulder so much of the financial risk." The Secretary's warning, in an interview at the start of a four-day visit to Alaska, is the first clear-cut indication that the White House opposes major elements of the financing package the pipeline's backers are developing.

According to Mr. Edwards, the administration urged companies working on the project "in the strongest terms" against pushing for controversial legislative changes that would permit them to pass on much of their construction costs to consumers before the 4,800-mile project is completed. The administration "has some real concerns" about asking U.S. consumers to pay for current construction on the project's Canadian leg regardless of whether the most difficult segment across Alaska is ever completed.

The companies, however, claim that they won't finance the project unless the President and Congress approve a host of legislative amendments, including one covering the charges to consumers.

The administration is expected to send a package of proposed legislative changes to Capitol Hill later this summer. But Mr. Edwards made it clear tht the project's sponsors, led by Northwest Energy Co. of Salt Lake City, and the Canadian Government, which also has been pushing for certain amendments, won't get as much as they want.

Mr. Edwards said President Reagan personally delivered that message to Canadian Prime Minister Pierre Trudeau last week when the two leaders met in Washington. In response to a question, Mr. Edwards conceded that the pipeline question is "becoming one of the real sore points" in United States-Canadian ties.

But Mr. Edwards asserted that the White House isn't planning to placate the Canadian Government on the pipeline issue in exchange for help in other areas.

The pipeline, if completed, would channel about 2.5 billion cubic feet of gas a day from Alaska's North Slope across western Canada to the U.S. The Alaskan portion of the line is still in the engineering stage, and many industry executives and state officials question whether it can ever be financed.

The Reagan administration appears interested in trying to convince Alaska Gov. Jay Hammond to pledge a substantial chunk of money to the project to assure its completion. Among other things, Mr. Edwards said he intends to ask Mr. Hammond about possible state participation in the construction of a $4 billion gas-conditioning plant slated to be part of the project.

In return, Alaska could get control over some of the gas and use it to establish a local petrochemical industry, Mr. Edwards said.

But that idea is getting a lukewarm reception in Alaska. "I don't think that I am ready or the legislature is ready to make that kind of commitment" until all the private financing is in line, Gov. Hammond said during a weekend interview.

Meanwhile, state officials concede that the sponsors' hope of breaking ground on the Alaskan leg of the project by next spring is unrealistic. To begin with, these officials said, the sponsors are at least five or six months behind in obtaining environmental and other permits from the state. And the companies are arguing with state officials over the financing of roads necessary for the construction.

Mr. **SYNAR**. Mr. Secretary, I have an article dated July 13, 1981, from the Wall Street Journal, entitled "The White House Won't Support Major Aspects for Financing of the Alaskan Gas Pipeline." In the article you are quoted as saying President Reagan would not support the project if sponsors insist and, I quote, "consumers shoulder so much of the financial risk." According to the article, the administration urged the sponsors in "the strongest terms" against pushing for controversial legislative changes that would permit them to pass on much of the construction cost to the consumers before the pipeline is completed. This article also indicates the administration appeared interested in trying to convince the State of Alaska to pledge a substantial amount of money to the project to assure its completion.

I have two questions. First, I am interested in how the waiver package was changed between July 13, the date of the article, and last week to meet your concerns over consumers bearing much of the risk of this project. And second, whether or not the administration did approach the State of Alaska about pledging funds to this project and how it was resolved?

Secretary EDWARDS. Let me take the last one first. The State of Alaska certainly has an interest in this project. They are not one of the participants in the financing. I think they do have an interest in getting the royalties and severance taxes from the project if it is completed. But I think that it will be up to the State of Alaska and the other participants if they would like to work out something to let them participate in the financing.

Mr. SYNAR. In other words, the administration didn't try to encourage, as strongly as the article indicates, Alaska's participation?

Secretary EDWARDS. I can say that the Secretary of Energy did not. I don't know whether anyone—to my knowledge, no one in the administration has urged Alaska to participate in the project.

Mr. SYNAR. Will you try to encourage Alaska to participate?

Secretary EDWARDS. I don't think that is my position. I think if the participants who are presently in the project feel they would like Alaska to participate, they should invite Alaska in. But that is a private sector decision, not a decision on our part.

Mr. SYNAR. All right. Concerning the first one, then, what changed your mind that this wasn't going to be such a burden on the consumer?

Secretary EDWARDS. The waivers have been changed somewhat, and besides that, I work for the man in the White House. And the man in the White House wants his waiver package. Certainly I am going to do everything I can to get it passed. Considering that individual segments have to be completed before the precompletion billing takes place, and the advanced technolgy of pipeline laying today, I feel the chances of this project not being completed on time and on budget are very slim. What they do today with modern technology and pipeline laying is just unbelievable.

Mr. SYNAR. Mr. Secretary, let me ask you a second question. If I recall correctly, originally the proposal circulated was to allow the producers to hold a 30-percent equity interest in this project, which I am sure you know had some members here concerned. Yet now the final waiver proposal which the President submitted doesn't contain any limit at all on the percentage of producer participation, nor does it contain any specific restrictions on their control or management of the system. I would like to know why.

Secretary EDWARDS. I think that is also a private sector decision—that the producers should be allowed to work that out with the pipeline companies what part they should play. It is proposed that they accept 30 percent of the total package. Of the total package to be financed, 25 percent will be equity and 75 percent will be borrowed. Of that 25 percent equity, 30 percent is going to be supplied by the producers and 70 percent by the pipeline participants.

Mr. SYNAR. One more question, Mr. Chairman.

Mr. Secretary, why, after having several months of opportunity to do so, haven't you or the Department either performed a cost analysis, or evaluated the final cost estimate of the sponsors; and, second, would your decision on the waivers be influenced in any way if you thought the cost of the project had been underestimated?

Secretary **EDWARDS**. No, we feel in this administration that such decisions should be made by the private sector, those participating in the project, and bankers who are going to finance the project. We feel that the Government should not be making that decision, and what we would like to do is remove the obstacles to those participants making that decision. That is the purpose of the waiver. Those decisions should be made by the private sector.

Mr. **SYNAR**. Thank you, Mr. Secretary.

Mr. **SHARP**. Thank you. The gentleman from Utah, Mr. Marriott, is recognized for 5 minutes.

Mr. **MARRIOTT**. Thank you, Mr. Chairman. I will be very brief since there is a vote on.

You mentioned in your testimony, Mr. Secretary, that the cost of the pipeline was $23 billion. Isn't that more like $54 billion, $55 billion when you consider the interest? Your figure was not, did not include the interest cost.

Secretary **EDWARDS**. Mr. Marriott, that $23 billion is in 1980 dollars. In as spent dollars, it is $45 billion. That is with debt service cost and return on equity applied.

Mr. **MARRIOTT**. $45 billion?

Secretary **EDWARDS**. $45 billion, yes.

Mr. **MARRIOTT**. One other question. We have talked about the waivers, and I want to congratulate the Secretary for the proposed waiver program. I think they are reasonable and necessary. I suppose if we don't build this pipeline that ultimate costs of gas will be much higher than anything we can envision.

Let me ask you a question. Under waiver No. 1 that deals with early commencement of billing, if in fact you get one segment on line and then start the billing, and then it takes several years before the other segments come on line, can you estimate as to what the bottom line cost would be to the average consumer? We are awfully concerned about the consumers here. Can you put that in perspective as to what that means if we have a delay or only get one part?

Secretary **EDWARDS**. Mr. Marriott, the most expensive aspect to the consumer would be if the Canadian segment were completed and the Alaskan segment were completed, but the conditioning plant was not completed. That would be the most expensive situation that could exist. The average residential consumer would pay about $1.50 to $1.75 per month during that period until the processing plant was completed, but that would only be for that period of time.

Mr. **MARRIOTT**. We are talking about some relatively small charges to the average consumer.

Secretary **EDWARDS**. It depends on what income category you are in.

Mr. **MARRIOTT**. Thank you, Mr. Chairman.

Mr. **Sharp**. Thank you. I believe because we are so close to the time on the vote that we will briefly recess. Mr. Udall will be back and I suspect want to get a couple more questioners in fast. He should be here any minute. Hopefully we won't stand in recess for more than a couple minutes. But for us to make it over there, I am afraid we are going to have to briefly recess.

[Brief recess.]

Mr. **Udall**. We have almost reached the time, Mr. Secretary, that I have told you we would let you go today.

Mr. Tauzin, do you have any questions? You have 5 minutes at most.

I had recognized Mr. Tauzin. The gentleman from Illinois, Mr. Corcoran, is recognized.

Mr. **Corcoran**. I yield.

Mr. **Udall**. Mr. Tauzin.

Mr. **Tauzin**. I will keep it brief. I want to express some of the same concerns Mr. Dannemeyer expressed.

That is, I hope we can get the natural gas deregulation issue before us as fast as we can. I have urged the Administration, as he has publicly here today, that that needs to proceed as fast as possible.

I also recognize that this is a separate issue to a large extent. This thing needs to stand on its own. I understand that.

I also understand that if we are ever going to have any kind of domestic supply stability, we ought probably not be out worrying about protecting somebody else's oil and gas, but be developing our own, getting the supplies available to our consumers.

I am going to support your waiver package.

Secretary **Edwards**. I appreciate that.

Mr. **Tauzin**. Hopefully we will get it out on the floor, get it passed and get this thing going. I also wanted to clarify with you the prebilling arrangements. I think I understand correctly. Prebilling applies only to those segments already completed after a final completion date is determined for the full project, is that correct?

Secretary **Edwards**. By FERC. That is exactly right. You can look at it also as an incentive on the part of those people billing that segment to get it completed on time.

Mr. **Tauzin**. Yes. In addition to that, doesn't FERC have some responsibility, once Congress has approved this waiver package, to determine the economic viability of the project?

Will they not have a hearing on that once this waiver package is completed?

Secretary **Edwards**. Yes, they will.

Mr. **Tauzin**. And should that not answer the concerns that I heard expressed, not only today but before today, about the economic viability of the package in view of the fact that this prebilling is now a requirement of the project?

Secretary **Edwards**. I am sure it will answer some of the concerns.

Mr. **Tauzin**. Well, do you want to answer all of my concerns, you just talk to that boss you have in the White House and urge him to come down with his natural gas deregulation statement.

Secretary **Edwards**. Let's take them one at a time and maybe we can get them both.

Mr. **Udall**. Mr. Corcoran, a couple minutes.

Mr. **Corcoran**. Thank you, Mr. Chairman. I just have one question for the Secretary and that again is related to the issue of natural gas deregulation. Perhaps the question has been answered already. But I would like to know whether or not in the decisionmaking process within the administration on these two issues there was any linkage?

Are these two separate issues or were they linked in some way?

Secretary **Edwards**. They are completely separate issues. I would like to keep them that way.

I think this one should stand on its own merits and, of course, deregulation, I think, will certainly stand on its own merits.

Mr. **Corcoran**. Thank you.

Mr. **Udall**. The hour has come. I am going to release you in just a minute.

I think you can see, Mr. Secretary, the intense interest there is in this subject in the room and amongst the members. We are going to continue our hearings today until 4, 4:30, depending on the situation.

We go tomorrow afternoon at 2:00, Thursday afternoon, then Friday, we are going to come in at 9:30 and continue the hearing with a long list of witnesses.

I would like to get you back here to complete answering members' questions. Is tomorrow afternoon or Friday morning or Friday afternoon OK, or will you be gone?

Secretary **Edwards**. Mr. Chairman, if you would allow me first, I would like to express my appreciation to you and the committee for allowing me to go to this other meeting and excusing me.

We will try to work with you to come back as close as we can.

Mr. **Udall**. Is the rest of the week out, Thursday and Friday or do you know?

Secretary **Edwards**. Mr. Chairman, we will bend over backward to try to get here, because we are as anxious to try to get this package through as you are, as I hope you are.

Mr. **Udall**. I understand that. My enthusiasm may depend on your cooperation.

Secretary **Edwards**. You will have my full cooperation. I will try to make it back at your pleasure.

Mr. **Udall**. Let's work it out as soon as we can. Thank you very much.

Secretary **Edwards**. Thank you.

Mr. **Udall**. We are now scheduled to hear from Mr. John G. McMillian, chairman of the board of partners, Alaska Northwest Natural Gas Transportation Company.

STATEMENT OF JOHN G. McMILLIAN, CHAIRMAN OF THE BOARD OF PARTNERS, ALASKA NORTHWEST NATURAL GAS TRANSPORTATION CO., ACCOMPANIED BY RUSH MOODY, COUNSEL, AND DARRELL MacKAY, SENIOR VICE PRESIDENT, REGULATORY AND GOVERNMENTAL AFFAIRS

Mr. **McMillian**. Thank you, Mr. Chairman.

Mr. Udall. You may introduce your colleagues in backup if you wish to and we will be glad to hear from you.

Mr. McMillian. Thank you, Mr. Chairman. We appreciate this opportunity to be here today. I have Mr. Rush Moody, our attorney, working on the project for many years with us, and Mr. Darrell MacKay, our vice president in Washington in charge of governmental affairs.

I have filed my written testimony with you. If it pleases the chairman, I won't read the complete testimony.

Mr. Udall. It is 10 pounds. I am not sure we could survive it.

Mr. McMillian. I would like to give you a short overview and summarize some of the more important things we did speak to in the filed testimony.

Our pipeline project is the largest project in the world with the possible exception of the Russian-German gasline now being considered.

Our project is now under way. It's being constructed, one-third, or 1,500 miles, is now being built in the lower 48 States and Canada.

This portion of the Alaska gas transportation system, was privately funded by the parties in partnership.

It was financed on Canadian gas volumes on an export agreement we made with the Canadian Government. The preconstruction of the lower 48 section is on schedule and under budget.

Today we have spent some $550 million on preplanning, preengineering work on the project. We have spent a total of 4.4 million man-hours of engineering work, planning work and geotechnical work.

We have had peaks of some 2,200 men working on this project at given times. They have stated that in all their history as a major contractor in the world, never has such an effort been given to preplanning, preengineering as this project has been given.

We feel our cost estimates that have been discussed here are very accurate. We feel like they have a solid basis and I feel all the oil and gas companies do agree with us that our cost estimates are sound cost estimates.

To summarize these costs for you in 1980 dollars, because that is the reference point we are required to take, the pipeline will cost approximately $10.8 billion, the plant, $3.6 billion.

And the Lower 48 section will be $2.8 billion and Canadian portion of the system will be $5.8 billion for a total in 1980 dollars of $23 billion.

Now, if you take those same costs and escalate them to 1986, 1987 dollars on a 9 percent inflation and 12 percent interest factors, those costs will escalate to some $43 billion.

So the ultimate cost of the project will depend upon mainly what the inflation and interest cost will be during this time period to completion.

Of the $23 billion mentioned to you for the 1980 cost, $5.5 billion of this is in normal or abnormal contingency cost.

So the basic cost estimate of the project, without the contingency costs, will be about $17.5 billion, or the contingency cost will be about 31 percent of the entire project and 42 percent in Alaska which we feel like gives us a very solid basis for the cost estimates we are looking at today.

Again, on the factors for 1980 dollars, the cost of gas that was talked about and mentioned here, at the start, the cost of gas would be about $9.25 per million Btu in the first year of operation.

The first 5 years of operation, that will decrease to $7.58 per million Btu. I think the very important factor in this project is over the 20-year life of the project, that the total cost of the gas in 1980 dollars will be $4.85 per million Btu.

You compare that to oil prices and escalate the present oil prices today at 3 percent per year and that will compare to about $9 per million Btu's of energy, comparing the cost to oil prices.

So it is approximately half the cost of oil that you will be looking at from this project from the energy sources we bring into this country. So we think it is the best energy buy that you have today.

You are asking, I have heard other people say, is that gas supply really needed? Do we need it? Are there alternate sources of energy?

Should we do this? Should we do that? Most of the things you have mentioned, we should do all of them. If you will look at the reserve life index of all the transmission companies in the United States, it is only 10 years and that is a very short reserve life index.

If you take the Alaskan gas supply out of that, then the reserve life index of all the transmission companies in the United States is 8.5 years. When you look at some States like Louisiana, which represents about 26 percent of our domestic gas reserves, and they are depleting and reducing those gas reserves at a 16.5-percent per year rate, in 6 years, those volumes of gas will be depleted, which will be about the same time the Alaskan gas will be brought to market. We feel like this gas supply is badly needed and will be needed by the transmission companies and consumers in that timeframe.

We will present to you a detailed marketability study and national economic benefit study to you that we think is a very thorough and complete study.

Since 1977, we have formed a partnership and operating agreement with 13 gas transmission companies and oil companies, each of us working toward a common effort and common goal, which is completion of this project.

That partnership or that working association has worked very well. The transmission companies have certainly made a great effort toward this.

I also must say the oil companies have also contributed their efforts and money and personnel to the planning for this project.

A lot of people ask why this project should be built and what are the real needs for this project. We think the needs are great.

The net economic benefit of this project to this Nation is immense. There is no project greater than this project the American consumer.

The net economic benefit will be somewhere between $40 to $90 billion to this country, with most of that going to the consumer.

In the first year alone, the balance of payments of this project will have a positive balance of payments of $7 billion to this country.

This will be the lowest dollar figure on the balance of payments aspects that the project will have. It will continue to increase throughout the life of the project.

We view this project as not just a gas pipeline to bring Prudhoe Bay gas to the Lower 48. We view this project as a gas energy corridor to Alaska.

So it is not only to pick up the 26 trillion cubic feet of gas at Prudhoe, which is 13 percent of our domestic gas reserves, but also a potential for the 145 trillion feet Alaska has to offer our country.

So we look at it in that light and for those total gas supplies, and we feel the project must be built. It also allows our Canadian friends to bring their frontier gas to their markets in their time frame, and we think that is extremely important to our country to continue the exports of gas from Canada that we now enjoy.

A question was asked, what would happen to our relationship with Canada if the project was not built. I think, and I will give you my opinion, because I know this question will be asked.

I know that certain Canadian governmental officials have stated from time to time that they look at this as an American project to bring American gas to American markets.

The Canadian Government views this as they are doing us a favor by giving us the right-of-way to put this system, gas system, through their country.

They also consider prebuilding of the lower 48 segment. In July 1980, they gave us a billion cubic feet per day of gas for seven years that allows us to prebuild the Alaskan gas project at a lower cost and to amortize a great portion of the investment of our Alaskan gas transportation system with Canadian gas.

They did this as a favor to us, because the project is needed. While there are some benefits to Canada, they did this with the assurance they felt—that the Alaskan project would be built.

If the Alaskan project is not completed, I think that the entire Canadian energy relationships with our country will be reexamined, not only as to the exports of gas as part of the prebuild, but our entire gas exports.

I think this is important from a national security standpoint because we are not only talking about the 2 billion cubic feet per day current exports, but we are talking about another billion from Canada which greatly helps our energy balance.

But we are also looking, as has been mentioned by the Secretary, at some 400,000 barrels a day of OPEC oil that this project will displace when it first comes onstream.

We feel like the initial volumes of gas, 2 billion cubic feet a day will be rapidly expanded to 3 billion cubic feet a day and the present design was to allow us to displace another 200,000 barrels of oil or 600,000 barrels total.

So, from a domestic supply and the national security standpoint, we think this project is very important.

The physical aspects of this project of this system have not changed since 1977, but the economic factors have changed.

They have changed drastically. And because of those certain and fundamental changes, modification to our financial approach must be considered and it must be thought about.

I have had to adjust these modifications because of the national need for this project; we think this is the only way that you can possibly privately finance this project in light of the conditions that exist today.

So, I'd like to speak about these changes and I'd like to also tell you about the waiver package and why we need it.

I once told you in 1977, the transmission companies should have the equity strength and support to carry this project by themselves.

With the magnitude of dollars that are now involved, we can no longer do that.

I also told you the conditioning plant would not be integrated with the project. I also told you that consumers thought the entire project would not be necessary. Today, under the conditions that we face, I'm compelled to face those realities and summarize some of the things that have happened since the 4 years since I stated these views.

Some of the things that have changed, we anticipated 1 year rather than 4 years to establish the governmental standards which affect capital costs, project economics and financing concepts. These governmental matters include such items as the IROR mechanism, design specifications, wellhead pricing, Federal right-of-way, equal opportunity, minority business, and Federal inspector oversight.

I'd like to say at this time the Federal inspector's office was a good concept. It is working and it is very helpful to the project, but that office did take time to establish. We also had to have a method for cost estimate review and approval. In fact, the cost estimate that was asked here has been constantly reviewed by FERC for the last 12 years.

They had a report out on independent agency and so that project has been going on for the last 4 years.

We blame nobody for these delays. A lot of the approaches on the incentive return mechanism were experimental approaches. It was a first-time-through process. It took longer than what we expected, but this is a mammoth project that took a lot more thought, time, effort, than any of us really estimated.

Since 1977, the U.S. economy has experienced the shock of double-digit inflation and double-digit interest rates. The original economics of this project were based on 5 percent inflation and 10 percent interest cost. Because of the timelags, interest costs, and construction costs have inflated. We're now approaching the dollar value for construction costs which are beyond the transmission company's means. A lot of these costs and escalations are beyond our control. In fact, I think most of them.

This puts us in the position that we had to explore and request equity support from the producers. The producers have come forth and they have been positive in their support, but producer participation in this project is keyed to several events.

One is that if they are going to participate in anything, they must own equity, rather than just have debt support. And they believe, and we support, that they should have a full integration of the plant into the system, the gas processing plant.

Finally, there's been a change in the assessment of the financial experts as to the nature and the extent of the credit support which will be required by the world capital markets during construction.

During the early phase of this project, we were looking for most of the funds to be domestically derived. I think today the funds for this project, the majority, approximately 60 percent will be derived from overseas and so we have a different set of financial concerns because of this and in the financial markets that we must attract to this project.

We have been told that full project financing will not be available and that we, the transmission companies, the producers, the participants in the project, must assume additional risk of debt support during construction.

We will be asked to provide debt support for the bulk of the debt during construction.

Our company had no intention of coming up and committing $1,500 million for our share of this project, but we have and we plan to in order to meet this request that is now required.

We have also been advised that limited consumer debt support will also be necessary.

Each of these four areas that I mentioned represent a significant change in conditions. Together, these four changes require us to appear before you today and ask for your support in the modifications to the decision. That's why the waiver request of October 15 was presented to you.

Our conclusions which will be supported by both commercial and investment bankers and were reached on this basis. The producer's credit must be behind the project. Without producer participation, no private financing can be arranged. And so, therefore, we feel that it is fair and equitable to give them an equity position in the project because the project's magnitude and size is now beyond the means of the gas transmission industry.

The conditioning plant is necessary to transport gas. Without conditioning the gas on the North Slope, no gas will flow. It is also important that we coordinate the construction of this project with the pipeline and I think that is also essential to financing the complete project.

The billing commencement date that we've talked about, this is a Canadian requirement. The waiver fulfills a Canadian promise. Without it, they cannot build the project.

They said that this is an American project for American gas; we do not mind putting our money into it and giving you the right-of-way, but when our share of the project is complete, we would certainly like to get paid for debt and equity of our investment for your project. We think that is a reasonable request. In the August 28th letter from the U.S. banks, this requirement was also put on the Alaskan segment, and considering the conditions that now exist, we agree with that request.

Regulatory consistency will, we believe, be a necessary lender requirement, not only domestically, but in the world financial markets that we must attract to this project. We think this is a very important waiver.

Briefly, Mr. Chairman, I just touched upon several of the key factors of the project. I'll be glad to try to answer any questions that someone might have at this time.

[Testimony resumes on p. 348.]

[Mr. McMillian's prepared statement and attachments follow:]

Prepared Statement

of

John G. McMillian
Chairman, Board of Partners
Alaskan Northwest Natural Gas Transportation Company

Mr. Chairman, I am John G. McMillian, Chairman and Chief Executive Officer of Northwest Energy Company and Chairman of the Board of Partners of Alaskan Northwest Natural Gas Transportation Company, the consortium of natural gas companies selected to design, construct, and operate the Alaskan segment of the Alaska Natural Gas Transportation System.

We are very pleased to appear here today to support the waiver of law proposed by the President. The Alaskan Northwest partnership, its Canadian counterpart, Foothills Pipe Lines (Yukon) Ltd., the three principal North Slope gas producers, Arco, Exxon, and Sohio, the project's financial advisors, both here and in Canada, and the lenders who are expected to provide a significant portion of project debt, have reached a critical stage with respect to completion of the ANGTS. Many hurdles, regulatory and otherwise, have been successfully surmounted. Over one-third of the total pipeline mileage is either complete or currently under construction. However, one significant hurdle remains -- final development of a private sector financing plan which will enable the remaining portions of the ANGTS to be constructed. The waiver you are considering is essential to development of a financing plan. Without the waiver, the ANGTS cannot be completed by private industry alone. If the ANGTS is not completed, consumers in this country would be denied access to over 13 percent of our nation's proven domestic gas reserves, and our country would be forced to maintain a greater dependency on vulnerable and insecure foreign energy sources.

Those who have become involved with this project following the discovery of the Prudhoe Bay field in 1968 are firmly committed to completion of this vital transportation link to the North Slope. This group includes most of the largest gas transmission companies in this country and Canada; the North Slope oil and gas producers which have developed the Prudhoe Bay reserves and were instrumental in the construction of the facilities necessary to bring the North Slope oil to lower 48 markets; and, collectively, both our financial advisors and the prospective lenders who have arranged the financing for most, if not all, major energy projects during the last two decades, and who are expected to arrange for and contribute significant amounts of the debt necessary to assure completion of the ANGTS.

We believe the ANGTS can and must be completed, and we welcome the opportunity to testify on behalf of the waiver proposal. We believe these hearings will amply justify the need for the proposed waiver and the need for expeditious, positive action. The waiver proposed by the President is not the same as that requested by Alaskan Northwest in June of this year. However, the modifications which have been made are acceptable to Alaskan Northwest as the minimum necessary to attempt to develop a private financing plan that will assure completion of the project.

My testimony today will provide a summary of the procedural background of the project, the construction to date, the major regulatory approvals and milestones, current activities, the estimated capital costs, the marketability of Alaskan gas, the benefits of the project to the U.S., the financing parameters, the regulatory approvals that still must be obtained, and a discussion of the waiver transmitted by the President.

I. PROCEDURAL BACKGROUND

A. Selection Process

In 1968 the largest single discovery of oil and natural gas ever found on the continent of North America was made at Prudhoe Bay on the North Slope of Alaska. The Prudhoe Bay field contains over twenty-six trillion cubic feet of recoverable natural gas, or 13 percent of all proven domestic gas reserves. Potential gas reserves in Alaska have been estimated at over 100 Tcf.

In view of the significant demand for natural gas in this country, it was recognized by all involved in the natural gas industry that construction of an economical transportation system for bringing Alaskan natural gas to the lower 48 states was imperative. This recognition led to the filing with the Federal Power Commission, the predecessor to the Federal Energy Regulatory Commission, of applications to construct such a transportation system.

1. FPC Proceedings

Between 1974 and 1976 three separate and competing gas company consortia, including Alaskan Northwest's predecessor, Alcan Pipeline Company, applied to the Federal Power Commission for authority to build a system to transport Alaskan gas to the lower 48 states. The three competing transportation proposals were consolidated for hearing and decision at the FPC and a massive formal evidentiary proceeding to determine the best proposal was initiated. During the course of the three years of hearings over 45,000 pages of testimony and over 1000 exhibits were compiled on all aspects of the design, financing, construction, and operation of two different overland pipeline routes through Alaska and Canada and an alternative Alaskan pipeline/liquified natural gas tanker system. Detailed consideration was given to such matters as gas reserves and deliverability, construction schedules and techniques, financing and cost of service, tariffs, marketability, geotechnical concerns, and socio-economic impacts. Additionally, comprehensive environmental impact statements were prepared by both the FPC staff and the Department of Interior. The FPC staff statement concluded that the most environmentally acceptable pipeline route was along the Alcan highway corridor and followed the 1975 issuance of a report to Congress by the Secretary of Interior, which concluded that an overland transportation system through Alaska and Canada for the transportation of North Slope gas reserves, including the

Alcan highway corridor route, was economically and technologically feasible. */

2. ANGTA

While the FPC was holding these hearings, Congress, recognizing the potential for delay at the FPC and the urgent need for Alaskan gas, enacted the Alaska Natural Gas Transportation Act of 1976. The purposes of the ANGTA were to provide a means for making a sound decision with respect to the selection of an Alaska Natural Gas Transportation System and, once the selection had been made, to expedite its construction and initial operation by expediting agency decisions, limiting and expediting judicial review of such agency decisions, and providing a mechanism by which the President could propose and Congress could waive laws that applied to the gas transportation system if necessary to permit the expeditious construction and initial operation of the system.

The ANGTA provided a six-part procedural framework to expedite a final decision on and construction of an Alaska Natural Gas Transportation System: (1) a FPC recommendation to the President based upon the record developed during the two years of evidentiary hearings on the three competing applications and briefs and comments to the Commission; (2) comments to the President on the FPC's recommendation by Federal agencies and others; (3) a Presi-

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*/ U.S. Dept. of the Interior, Alaskan Natural Gas Transportation Systems: A Report to the Congress, Pursuant to Public Law No. 93-153 (1975).

dential decision on the best possible ANGTS; (4) Congressional consideration and approval by joint resolution of the President's decision; (5) expedited handling of all Federal authorizations necessary or related to the construction and initial operation of the approved ANGTS; and (6) waiver of provisions of law where necessary for the expeditious completion of the ANGTS.

3. FPC Recommendation

On May 1, 1977, the FPC recommended that the President select the system for transporting Alaskan natural gas from the two overland pipeline proposals across Canada to the lower 48 states. Each of these pipeline proposals, however, took a different route through both Alaska and Canada.

4. Federal Agency Comments

On July 1, 1977, comments by various Federal agencies were submitted to the President. Every important issue regarding every major element of the FPC's recommendation was exhaustively studied through this system of recommendation and comments.

- The Federal Energy Administration, predecessor to the Department of Energy, concluded that any of the proposed systems to transport Alaskan gas to the lower 48 would help ensure that natural gas shortages do not occur and would reduce our dependence on foreign energy resources. The FEA also concluded that net national economic benefits of an ANGTS would be substantially positive.
- The Department of the Treasury stated that an economically viable system to transport natural

gas from Alaska to the lower 48 states could be privately financed.

- The Office of Coastal Zone Management of the Department of Commerce found that the adverse effects on native communities and local lifestyles would be less with the Alaskan Northwest route than with the other two competing proposals.
- The Council on Environmental Quality concluded that the Alaskan Northwest proposal was "the most environmentally acceptable" of the three competing proposals.
- The Department of the Interior found that the Alaskan Northwest route best minimized the environmental impact in Alaska if proper mitigative actions were taken.
- The Department of State concluded that a viable option existed for the transportation of Alaskan natural gas across Canada.
- The Justice Department report found that antitrust considerations did not militate against selection of any of the proposed transportation systems and that competitive considerations did not indicate the selection of one transportation system proposal in preference to the others.
- The Department of Transportation concluded that "with regard to pipelines, their continuity of service is by

far the best of any mode of transportation in the United States and we believe the Canadian experience is comparable." DOT also concluded that there was a "significant efficiency advantage to an all-pipeline system."

- A report by the Department of the Interior and the Department of Transportation found that the Alaskan Northwest proposal had the earliest expected delivery date and the least total cost.
- The Department of Defense found that a system to transport gas from Alaska to the continental United States was necessary to national security since it would enable the United States to reduce oil imports.

5. Canadian National Energy Board Selection of Alaskan Northwest Route

Following extensive hearings and deliberations, the Canadian National Energy Board on July 4, 1977 unanimously recommended certification of the Canadian portion of the route proposed by Alaskan Northwest's predecessor, Alcan, with several modifications. The NEB's decision was premised, in part, upon the environmental unacceptability of alternative routes.

Specifically, the NEB recommended certification of a Canadian segment consisting of approximately 2000 miles of pipeline to begin at the Alaska-Yukon border and proceed to a point near the James River, Alberta, where the pipeline would divide into the Eastern and Western Legs and proceed to delivery points near Monchy, Saskatchewan and Kingsgate, British Columbia. This route was sponsored by Foothills Pipe Lines (Yukon) Ltd., which is owned equally by NOVA, an Alberta corporation, (formally The Alberta Gas Trunkline Company Limited) and Westcoast Transmission Company Limited.

6. Transit Pipeline Treaty

On August 3, 1977, the U.S. Senate ratified a treaty between the United States and Canada concerning "transit pipelines." This Transit Pipeline Treaty applies to the transmission by pipeline through one country of hydrocarbons not originating in that country for delivery in the other country.

The treaty prohibits authorities in either country from taking any measures which would impede, divert, redirect, or interfere with the transmission of hydrocarbons in transit. It also provides that each country will facilitate the expeditious issuance of permits, licenses, and other authorizations needed for the import or export through its territory of hydrocarbons through a transit pipeline.

The treaty mandates that public authorities in both countries not impose fees, duties, taxes, or other monetary charges on a transit pipeline not placed on similar pipelines not transiting the national border.

7. Agreement on Principles

On September 20, 1977, the United States and Canada signed an "Agreement on Principles Applicable to a Northern Natural Gas Pipeline" which established the terms and conditions by which the two countries would cooperate on a joint gas pipeline system for the transportation of gas from Alaska and northern Canada. This Agreement provides for:

- prompt governmental approval of necessary permits, licenses and certificates;
- nondiscriminatory charges assessed in a just and reasonable manner;
- expeditious and efficient construction;
- sufficient capacity to meet the needs of U.S. and Canadian shippers;
- private financing and a variable rate of return;
- nondiscriminatory taxation;
- procurement practices on "generally competitive" terms;
- coordination and consulation between the governments and their respective regulatory authorities (the FERC and the NEB); and,
- each government to take measures necessary to facilitate timely construction, consistent with their respective regulatory requirements, and to seek all required legislative authority to facilitate expeditious construction and remove any causes of delay.

8. President's 1977 Decision

On September 22, 1977, the President issued his Decision and Report to Congress on the Alaska Natural Gas Transportation System selecting the Alaskan Northwest pipeline proposal and route as the most efficient, economic and cost effective means to bring Alaska gas to the lower 48 states. The Decision designated Alaskan

Northwest's predecessor, Alcan, to construct and operate the 745 mile pipeline segment commencing at the outlet of the Prudhoe Bay gas conditioning plant and extending to the Alaska-Yukon border; Northern Border Pipeline Company to construct and operate the U.S. Eastern Leg, consisting of approximately 1,130 miles of pipeline extending from Monchy, Saskatchewan to Ventura, Iowa for the transport of approximately 70 percent of the Prudhoe Bay gas to markets in the Midwestern, Eastern, and Southern portions of the United States; and Pacific Gas and Electric Company and its affiliate, Pacific Gas Transmission Company, to construct and operate the U.S. Western Leg, extending approximately 910 miles from Kingsgate, British Columbia to the San Francisco Bay area, for the transport of approximately 30 percent of the Prudhoe Bay gas to markets in the Western United States.

The President's Decision specifies certain terms and conditions that would apply to the ANGTS:

- Enforcement of the terms and conditions by a Federal Inspector;
- Approval or, in certain instances, review by the Federal Inspector of a comprehensive management plan, cost and schedule control techniques, final construction design, purchase procedures, labor management programs, quality assurance and control procedures, safety precautions, and environmental protections;
- Approval by the Federal Inspector of an affirmative action program for minority business enterprises;

- Use of a variable rate of return mechanism to provide incentives for project completion below budgeted costs;
- No tariff could be used which required payment from consumers prior to the completion and commissioning of the system; and
- Requirement that Alaskan gas producers have no equity, voting, or management position in the ANGTS.

The Decision also incorporated the complete text of the September 20, 1977 Agreement on Principles between the U.S. and Canadian governments.

9. Congressional Approval of Selection of Alaskan Northwest to Build the ANGTS

On November 2, 1977, Congress approved the President's Decision and the environmental impact statement prepared for the approved ANGTS. (H.J. Res. 621, Pub. L. No. 95-158) (Appendix A).

10. FERC Issuance of Conditional Certificates

Under Section 5(a)(2) of the ANGTA, the completion of the selection process in the U.S. required that the Commission issue certificates to those chosen to construct and operate the ANGTS. Accordingly, on December 16, 1977 the Commission issued conditional certificates to Alaskan Northwest's predecessor, Alcan, Northern Border Pipeline Company, and Pacific Gas Transmission Company for their respective segments of the ANGTS. */ In that order, the Commission identified several additional areas of

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*/ The segment to be constructed within California by Pacific Gas and Electric Company is subject to the jurisdiction of the California Public Utilities Commission.

inquiry that needed to be addressed before final certificates could be issued. The Commission appointed an Alaskan Delegate to conduct proceedings on these areas on its behalf and to make recommendations with respect to their resolution.

11. Northern Pipeline Act

On April 12, 1978, the Canadian Parliament enacted the Northern Pipeline Act, which ratified the July 4, 1977 decision of the Canadian National Energy Board certificating the Canadian segment of the ANGTS and approved the construction and operation of that segment of the ANGTS. This Act also established the Northern Pipeline Agency to facilitate planning and construction of the Canadian pipeline, to implement the terms and conditions of the Agreement on Principles, and to monitor and minimize the social, economic, and environmental effects of the construction and operation of the Canadian segment of the ANGTS.

B. Related Matters

1. Natural Gas Policy Act

On November 9, 1978, the pricing of natural gas was modified by enactment of the Natural Gas Policy Act. That Act established the wellhead price of Prudhoe Bay gas at $1.45 per MMBtu as of April 1977, subject to escalation for inflation; provided that price regulation of Prudhoe Bay gas will continue beyond January 1, 1985, when wellhead price regulation will end for certain other categories of gas; and allowed the delivered price of Alaskan gas to be rolled-in with the prices paid by U.S. pipelines for gas from other sources for resale to distribution companies, industrial customers, and other end users.

2. Office of the Federal Inspector

Congress included a provision in the ANGTA requiring the appointment of a Federal Inspector and authorizing him to take the following actions to facilitate government monitoring of the ANGTS: establish a joint surveillance and monitoring agreement with the State of Alaska; monitor compliance with applicable laws and the terms and conditions of any applicable certificate, right-of-way, permit, lease, or other Federal authorization; monitor actions taken by the sponsors to assure timely completion of construction schedules and the achievement of quality construction, cost control, safety, and environmental protection objectives; subpoena information necessary to carry out his responsibilities; keep the President and Congress currently informed on any significant departures from compliance; and issue quarterly reports to the President and the Congress.

As previously indicated, the President's 1977 Decision provided the Federal Inspector with certain additional specific duties and responsibilities including the following: approval of the ANGTS sponsors' overall management plans; approval of insurance, bonding, and pre-qualification requirements for contractors; approval of the design of any segment prior to construction; and approval of affirmative action plans.

In addition, the Federal Inspector must also review the methods for supplying equipment, repair facilities, and spare parts inventories to the execution contractors; collective bargaining agreements and labor relations procedures; quality assurance and control procedures; proposed cost and schedule control techniques; and all plans for implementation of specific environmental safeguards.

3. Reorganization Plan No. 1

In May 1979, Congress allowed the President's Reorganization Plan No. 1 of 1979 to take effect, which transferred to the Federal Inspector from various Federal agencies the responsibility to enforce the terms and conditions imposed by those agencies in the permits, rights-of-way, or other authorizations issued with respect to the ANGTS. This responsibility includes compliance or oversight activities reasonably related to the enforcement process. In addition to enforcement functions, Reorganization Plan No. 1 charged the Federal Inspector with the responsibility to coordinate the expeditious discharge of permitting activities by all Federal agencies and to ensure their compliance with Section 9 of the ANGTA, which requires expeditious agency action on all ANGTS-related matters. The purpose of this provision was to establish a "one window" approach to the governmental approval process.

Finally, the Federal Inspector is acting in the role of the "senior official" contemplated in the Agreement on Principles with Canada, whose obligation is to consult with Canada concerning implementation of the principles relating to the construction and operation of the ANGTS.

II. ANGTS CONSTRUCTION TO DATE

Construction of approximately 1,000 miles of the ANGTS in the lower 48 states and approximately 500 miles in southern Canada, or 30 percent of the total pipeline mileage, is now either complete or underway. This portion of the system is being "pre-built" to permit the U.S. to import an additional 1.215 billion cubic feet per day of Canadian gas for transportation through these "pre-built" facilities, pending completion of the entire ANGTS and transportation of Alaskan gas.

Following a hearing process on the pre-build facilities lasting one and one-half years, including formal evidentiary hearings, the Commission in 1980 authorized Northwest Alaskan to import for transportation through the Western Leg pre-built facilities of the ANGTS up to 300,000 Mcf of natural gas per day purchased from Pan-Alberta Gas, Ltd. for delivery to southern California markets. Imports through these facilities commenced October 1, 1981.

In 1980 the Commission also authorized Northwest Alaskan and others to import through the Eastern Leg pre-built facilities of the ANGTS up to an average of 975,000 Mcf of natural gas per day purchased from Pan-Alberta for delivery to Eastern, Midwestern, and Southern markets. Imports through these facilities will commence in the fall of 1982.

The estimated cost of the pre-build facilities is approximately $1.7 billion in 1980 dollars. Construction to date on the pre-build facilities has been on schedule and modestly under budget.

The related authorizations of the National Energy Board of Canada, both for the export of Canadian gas through the "pre-built" facilities and the construction of such facilities in Canada, were issued only after assurances were provided by both the Congress and the President that the ANGTS remained in the national interest and should be completed expeditiously and that steps would be taken in the U.S. to permit the Canadian sponsors to commence billing for the Canadian segment when it was completed and ready to operate.

Specifically, on July 18, 1980 President Carter sent a letter to Prime Minister Trudeau of Canada stating that the United States ". . . stands ready to take appropriate additional steps necessary for completion of the ANGTS." (Appendix B). With respect to the financing of the Canadian portion of the ANGTS, President Carter stated as follows:

> . . . the reasonable concern of Canadian project sponsors that they be assured recovery of their investment in a timely manner if, once project construction is commenced, they proceed in good faith with completion of the Canadian portions of the project and the Alaskan segment is delayed. In this respect, they have asked that they be given confidence that they will be able to recover their cost from U.S. shippers once Canadian regulatory certification that the entire pipeline in Canada is prepared to commence service is secured.

and concluded that:

> . . . I accept the view of your government that such assurances are materially important to insure the financing of the Canadian portion of the system.

> . . . I would be prepared at the appropriate time to initiate action before the U.S. Congress to remove any impediment as may exist under present law to providing that desired confidence for the Canadian portion of the line.

In July 1980, Congress passed a concurrent resolution (S.Con. Res. 104) expressing the ". . .sense of the Congress that the System remains an essential part of securing this Nation's energy future and, as such, enjoys the highest level of congressional support for its expeditious construction and completion by the end of 1985." (Appendix C). This Congressional expression of support provided the Canadian government with a critical assurance that construction of the entire ANGTS remained a U.S. priority. Support for the ANGTS by both the President and the Congress was necessary before the Canadian government would proceed to authorize the export of Canadian gas in support of the pre-built portions of the ANGTS.

III. OTHER MAJOR REGULATORY APPROVALS ALREADY SECURED AND SIGNIFICANT MILESTONES

Progress has also been made on the non-pre-build portions of the ANGTS in the four years since issuance of the President's 1977 Decision and Congressional ratification of that Decision. Numerous regulatory approvals required -- both in the U.S. and Canada -- have been issued and other significant milestones have been achieved.

A. Partnership Agreement

The Alaskan Northwest Natural Gas Transportation Company partnership was formed effective January 31, 1978 by subsidiaries of six major natural gas companies to own the Alaskan pipeline segment of the ANGTS. Since then, four other major natural gas companies, through their subsidiaries, have joined the partnership, bringing the membership to a total of ten companies. Thus, the Alaskan Northwest partnership is presently composed of affiliates of the following U.S. and Canadian natural gas companies: Northwest Alaskan Pipeline Company - an affiliate of Northwest Pipeline Corporation and subsidiary of Northwest Energy Company; American Natural Alaskan Company - an affiliate of Michigan Wisconsin Pipe Line Company and a subsidiary of American Natural Resources Company; Calaska Energy Company - an affiliate of Pacific Gas Transmission Company and a subsidiary of Pacific Gas and Electric Company; Northern Arctic Gas Company - a subsidiary of InterNorth Inc., of which Northern Natural Gas Company is a division; Pacific Interstate Transmission Company (Arctic), an affiliate of Pacific Interstate Transmission Company and a subsidiary of Pacific Lighting Corporation; Pan Alaskan Gas Company - an affiliate of Panhandle Eastern Pipe Line Company, a subsidiary of Panhandle Eastern Corporation; Columbia Alaskan Gas Transmission Corporation - an affiliate of Columbia Gas Transmission Corporation, a subsidiary of The Columbia Gas System, Inc.; Tetco Four, Inc., - an affiliate of Transwestern Pipeline Company and Texas Eastern Transmission Corporation, a subsidiary of Texas Eastern Corporation; Trans-Canada Pipe Line Alaska Ltd. - an affiliate of TransCanada PipeLines Limited; and United Alaska Fuels Corp. - an affiliate of United Gas Pipe Line Company, a subsidiary of United Energy Resources, Inc.

The combined assets of these partners and their parents and affiliates exceeds $40 billion. Their total 1980 gas sales were in excess of 7.8 Tcf, or 56 percent of all gas sales by major interstate pipelines in that year. As illustrated in the map attached as Appendix D, the affiliates of the partners transport gas ultimately distributed in 48 of the 50 states.

Alaskan Northwest, as a General Partnership under the Uniform Partnership Act of the State of New York, will finance, own, construct, and operate the Alaskan facilities that are part of the ANGTS.

Northwest Alaskan Pipeline Company has been designated operating partner by the partnership agreement with responsibilities for day-to-day activities necessary to plan, design, construct, and operate the Alaskan facilities.

The partnership is the successor in interest to Alcan Pipeline Company under ANGTA, the President's Decision, and related Federal Power Commission and Federal Energy Regulatory Commission orders, pursuant to a Commission order of June 30, 1978, which transferred the conditional certificate of public convenience and necessity from the original certificate holder, Alcan, to the Alaskan Northwest partnership. This order also found the terms and conditions of the partnership agreement consistent with the requirements of ANGTA and the President's Decision.

B. Incentive Rate of Return

In a normal pipeline certificate application, the FERC reviews the applicant's estimate of construction costs in determining whether to issue a certificate of public convenience and necessity authorizing the construction and operation of the proposed pipeline. Once a certificate is issued and construction completed, all costs are reviewed for prudency, and all prudent costs are then included in the pipeline's rate base. The pipeline earns its approved just and reasonable return on the investment deemed prudent, even if actual costs exceed the estimate approved by the Commission at the time of certification.

The President's Decision imposed a requirement in addition to the Commission's normal certification cost review and prudency determination -- establishment of a variable rate of return mechanism which would increase the ANGTS sponsors' allowable return for cost underruns or decrease their return for cost overruns. Unlike the normal pipeline certification process, under the President's guidelines the ANGTS sponsors would be penalized for cost overruns even if such additional costs were found prudent.

Pursuant to the mandate of the President's Decision to devise a variable rate of return mechanism, the FERC on May 8, 1978 commenced a rulemaking which culminated in the issuance of its Orders 31 and 31-B on June 8 and September 6, 1979. These orders established an incentive rate of return (IROR) mechanism applicable to the Alaskan Northwest and Northern Border segments governing the rate of return that the ANGTS sponsors of those segments may earn on project investment.

The basic elements of the Commission-approved IROR mechanism are the Cost Performance Ratio and an associated IROR schedule of rates of return. The Cost Performance Ratio is the ratio of Actual Capital Costs (derived from the final construction costs) to the Projected Capital Costs (derived from the FERC-approved Certification Cost Estimate, as modified by the Federal Inspector-approved Final Design Cost Estimate, which is the total estimated cost at the start of construction and any approved scope changes during construction). The Cost Performance Ratio is intended to measure how well project management has succeeded in controlling the costs of the project. An IROR schedule specifies an allowed rate of return for each possible Cost Performance Ratio. The lower the value of the Cost Performance Ratio the higher will be the allowed rate of return, and vice versa. The lowest return is referred to as the Marginal Rate of Return, which is 8 percent. Thus, the Alaskan Northwest partnership will earn only 8 percent return for each equity dollar of cost overrun above the government-established target cost estimate. Given today's interest rates, the 8 percent return is truly a penalty rate.

The proceeding to determine the initial target cost estimate to be used in the later establishment of the sponsors' actual equity return is now pending at FERC.

C. FERC Approved Gas Tariffs

In addition to the IROR mechanism, Commission Orders 31 and 31-B also approved Alaskan Northwest's and Northern Border's pro forma tariffs for the transportation of natural gas on behalf of the shippers of Alaskan gas. These approved tariffs specify the services to be performed, the method for computing the amount of payment for those services, and all related terms and conditions.

The tariffs are based on the concept of a monthly "cost-of-service" charge, which provides that the total charges to all shippers will equal the actual costs to Alaskan Northwest and Northern Border of performing the transportation service, including an allowed return on invested capital. Pursuant to the tariffs, service agreements will be entered into by Alaskan Northwest and each individual shipper and by Northern Border and the Eastern Leg shippers. */

The following key provisions are included in the Alaskan Northwest and Northern Border tariffs approved by the FERC:

1. Billing Commencement Date and Minimum Bill

The FERC ruled that billing commencement for Alaskan gas can begin when all ANGTS pipeline segments -- the Alaskan pipeline segment, the Canadian pipeline segment, the U.S. Eastern Leg, and the U.S. Western Leg -- are completed, tested, and proved capable of operating. Thus, under the existing approved tariffs, billing can in effect commence before the gas conditioning facility is operational and/or before gas is available for transport. The rate to be charged upon completion and commissioning is limited to a "Minimum Bill" which permits recovery of (i) actual operating and maintenance expenses, (ii) current taxes, and (iii) debt

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*/ Western Leg shippers will enter into service agreements with PGT and PG&E. Alaskan gas tariffs for the Western Leg were not considered in Commission Orders 31 and 31-B, because the Western Leg is not subject to the IROR mechanism.

service including interest and scheduled debt retirement. This level of reduced billing (which does not include a return on, or of, equity investment) would continue until gas is tendered for shipment and transportation service commences.

2. Interim Rate

The FERC established an Interim Rate to commence with the initial delivery of gas through the system, which terminates on the earlier of the first year of operation or upon the attainment of design capacity throughput, whichever occurs earliest. The level of the Interim Rate is to be computed on the basis of the projected cost of service for the first 12 months of operation divided by the system design capacity throughput. The Interim Rate is to be no lower than the Minimum Bill then applicable.

3. Service Interruption

The tariff as approved by the FERC provided for three categories of service interruption:

i) More than a 10 percent reduction in service -- If Alaskan Northwest or Northern Border is unable to accept and transport at least 90 percent of the Alaskan gas tendered to it for any one month, charges to shippers would be reduced for return on equity and associated income taxes proportional to the percentage of volumes tendered but not transported.

ii) Less than a 10 percent reduction in service -- If Alaskan Northwest or Northern Border is able to transport more than 90 percent of the gas tendered by the shippers, there would be no reduction in charges to shippers.

iii) Extended total service interruption -- In the event of a total cessation of service for 30 consecutive days, the segment responsible for the service interruption would be permitted to continue to collect that portion of its charges attributable to equity costs (*i.e.*, that portion of depreciation expense not necessary for debt service and associated taxes), subject to refund pending determination of the cause of the interruption. However, under no circumstances would debt service ever be impaired.

D. Pipe Size and Pressure

Following application by Alaskan Northwest, a report by the Commission's Alaskan Delegate and comments by all interested parties, the Commission on August 6 and October 15, 1979 issued orders establishing the design specifications and initial capacity of the Alaskan segment of the ANGTS. These specifications included the pipe diameter and maximum operating pressure of the pipeline, which largely determine the capacity throughput of the line and the ability of the gas stream to carry natural gas liquids. Based on its review of the report by its Alaskan Delegate and the comments of the parties, the Commission determined that the Alaskan pipeline segment of the ANGTS would be built with 48-inch diameter pipe, have a maximum operating pressure of 1260 psig, and have compressor station size and spacing for an initial capacity of 2.0 to 2.4 billion cubic feet per day but capable of expansion to an average daily volume of 3.2 billion cubic feet per day. The FERC orders were affirmed on appeal on January 3, 1980 in Earth Resources Company of Alaska v. FERC, 617 F.2d 775 (D.C. Cir.).

E. Federal Right-of-Way in Alaska

Since the majority of the lands traversed by the Alaska pipeline segment of the ANGTS is controlled by the Federal government, it was necessary to obtain a pipeline right-of-way from the Department of Interior. On August 19, 1980, the Department of Interior stated its intent to grant a right-of-way to Alaskan Northwest to cross Federal lands in the State of Alaska. Pursuant to Section 28(w)(2) of the Mineral Leasing Act of 1920, the Department of Interior requested that Congress waive the prescribed 60-day review period, which was done. On December 1, 1980 the right-of-way grant was formally issued by the Department of Interior.

The right-of-way contains numerous terms and conditions with which Alaskan Northwest must comply. In addition to extensive environmental restrictions, two of the most important stipulations are the requirement that Alaskan Northwest assist in the training of Alaskan natives for employment on the project and the requirement that the ANGTS be separated from the existing Alyeska oil line by 200 feet. The Department of Interior had previously required that the sponsors of the Alaska pipeline segment enter into a mutual indemnification agreement with the owners of the

Alyeska oil pipeline for damages that may occur on the respective rights-of-way. Such agreement was executed on November 26, 1980.

F. Environmental Terms and Conditions

On February 26, 1980, the Commission incorporated two general conditions into the conditional certificates of public convenience and necessity which had been issued to the ANGTS sponsors by Commission order of December 16, 1977. These conditions are applicable to all lands crossed by the pipeline, regardless of ownership. The first condition requires compliance with the Commission's regulations that establish guidelines for the location, clearing, and maintenance of pipeline rights-of-way and sites for related facilities. The second condition provides for the issuance of stopwork orders by the Federal Inspector.

G. Equal Employment Opportunity/Minority Business Enterprise

On May 7, 1980 the Department of Interior, pursuant to Section 17 of ANGTA and Condition I-11 of the President's Decision, promulgated final rules to ensure that no person will be excluded from participating in any activity connected with the construction and operation of the ANGTS on the basis of race, creed, color, national origin, or sex. On May 8, 1980 the Commission issued an order attaching the above-referenced rules to the ANGTS sponsors' conditional certificates of public convenience and necessity.

H. Delegations to and Approvals by the Federal Inspector

On March 31, 1980 the Commission delegated to the Federal Inspector the authority to attach terms and conditions to the certificates of public convenience and necessity issued to the ANGTS sponsors to implement the requirements of the National Historic Preservation Act of 1966 and the Preservation of Historical and Archaeological Data Act Amendments of 1974.

In May 1980 Alaskan Northwest filed its overall management plan with the Federal Inspector, in accordance with Condition I-1 of the President's Decision. This plan was approved in principle by letter dated June 6, 1980 subject to submission of supplemental support of specific details of that plan.

By order issued December 19, 1980 the Commission delegated to the Federal Inspector the responsibility to determine the prudency of expenditures to construct the ANGTS.

On August 13, 1981, the Federal Inspector approved Alaskan Northwest's Affirmative Action Plan, which covers both equal employment opportunity and minority and female business goals and timetables.

I. Cooperative Agreement Among Alaskan Northwest, the Principal North Slope Producers, and the State of Alaska

After extensive negotiations, Alaskan Northwest and the major Prudhoe Bay gas producers -- Arco, Exxon, and Sohio -- entered into a Cooperative Agreement in June 1980 relating to the design and engineering of the Alaskan gas pipeline and the related gas conditioning plant. This document was reviewed by the Department of Justice and the Department of Energy prior to its execution. The Alaskan Northwest partnership and the producers stated their joint intention to work together to expedite the design, engineering, and cost estimation of the Alaskan pipeline and gas conditioning facilities and to develop a financing plan in such a time and manner that all necessary government approvals could be obtained and facilities completed at the earliest practicable date. The Cooperative Agreement, to which the State of Alaska was also a signatory, became effective on June 20, 1980 and established a jointly funded, jointly managed Design and Engineering Board to continue the design, engineering, and construction planning of the Alaska pipeline segment and to begin the design and engineering of the gas conditioning plant necessary to prepare the gas for pipeline transmission.

Under the Cooperative Agreement, the producers agreed to contribute approximately $90 million to the design and engineering undertaking prior to further contributions by the Alaskan Northwest partnership. This contribution level was reached during January 1981. Thereafter, the Alaskan Northwest partnership and the producers have been contributing on a 50-50 basis toward design and engineering work for the Alaska gas pipeline and the conditioning plant. To date over $550 million has been spent in this effort alone.

The State of Alaska has thus far participated in monitoring the design and engineering effort as an observer. The State can, however, elect to participate actively in the financing and management of the design and engineering effort at any time.

IV. CURRENT ACTIVITIES

A. Alaskan Pipeline Segment

In 1978 Alaskan Northwest selected Fluor Engineers and Constructors, a subsidiary of Fluor Corporation, as its Project Management Contractor. Fluor was selected on the basis of its proven record as one of the world leaders in project management and arctic engineering and contracting.

Alaskan Northwest and Fluor have assembled a team of over 400 highly experienced cost estimators, cost engineers, design and pipeline engineers, and environmental and other experts representing every discipline necessary for estimating, designing, engineering, constructing, and controlling the cost of a project of the magnitude of the ANGTS. The companies working with Alaskan Northwest and Fluor in this effort include Gulf Interstate Engineering, Michael Baker, Jr., Inc., Northern Technical Services, Inc., and R&M Consultants, Inc. Also involved are execution contractors who participated in the construction of the Alyeska oil pipeline, as well as many other multi-billion dollar construction projects in Alaska and Canada, including Morrison-Knudsen, Reading & Bates Construction Company, a subsidiary of Reading & Bates Corporation, Peter Kiewit and Sons, Curran Houston Inc., a subsidiary of Sedco Inc., and Green Construction Company.

Collectively, Alaskan Northwest, Fluor, and these consultants have spent over three years and more than 1,000,000 workhours in the design and engineering of the Alaskan pipeline segment, including extensive, highly technical field programs to ensure the correct design, and over one year in preparing a detailed capital cost and schedule estimate for this segment. The final Alaskan pipeline design and engineering work is approximately 34 percent complete, and preconstruction field programs will be approximately 72 percent complete by the end of this year.

1. Design and Field Programs

The ANGTS will be designed and constructed as a chilled, high pressure, buried pipeline system utilizing traditional and well established techniques. Certain problems are encountered in the far north which require special attention due to the severe climate and unusual soil conditions. However, with the design and engineering work accomplished to date, no insurmountable technical problems have been identified. Hence, the remaining challenge is to determine the conditions to be encountered and to develop the most cost-effective design and construction mode to complete the system in a safe and cost-effective manner.

During the development of the design, numerous engineering review sessions were held between Alaskan Northwest, Fluor, their consultants and leading engineers from several key Federal agencies -- the United States Geological Survey, the Corps of Engineers, and its Cold Regions Research and Engineering Laboratories.

These technical experts, along with engineering specialists from Alyeska, have provided an additional source of expertise which adds significantly to the project effort, especially in the critical areas of frost heave design and geotechnical/geothermal requirements.

An additional source of technical expertise comes from the producer and pipeline companies participating in the project. Engineering specialists in soil mechanics, geotechnical, and geothermal disciplines have been made available to Northwest Alaskan for special engineering assignments. The Foothills engineering group in Canada is another important source of expertise. The exchange of technical data with Foothills has been quite valuable. The Canadians have considerable experience in arctic engineering dating back to the early 1950s. Significant areas where the project is benefiting from Canadian participation is in frost heave, fracture control, and the development of new construction methods. Foothills has operated a frost heave test site facility near Calgary for several years and has just concluded an extensive full scale pipe burst testing program, part of which was carried out to Alaskan Northwest specifications in order to determine optimum fracture control design. Additionally, late last year Foothills initiated field testing of materials and construction methods at their Quill Creek facility in the Yukon. Aside from the testing of construction modes, this facility was designed to verify insulation systems and construction methods, including development of new equipment.

a. Frost Heave and Other Testing

Of all design requirements, the development of suitable methods for frost heave mitigation is probably the most demanding. Much of the soils in Alaska are characterized by permafrost. The pipeline will operate in a chilled state in Alaska and part of Canada to avoid damage to these soils from melting of the frost in the soil. However, the chilled pipeline must be designed to avoid or withstand frost heave. Frost heave is the phenomena where unusual stress may be placed on the pipeline causing potential movement or heaving due to growth of a frost bulb around the pipeline caused by the cold pipeline freezing water which has migrated to the pipeline from surrounding soil.

A full scale field testing installation, comprised of ten different modes or types of pipe sections, was completed at Fairbanks in the fall of 1979. The Fairbanks site was selected because the soil type prevalent in this area is considered by geotechnical specialists to be a worst case situation. The Fairbanks frost heave test site has been in operation since October 1979. The results to date have been most encouraging, with the magnitude of heave experienced being approximately one half of the amount predicted.

In recognition of the value of full scale testing, a decision was made in 1980 to install six additional frost heave test sites, which sites were selected for the purpose of providing the widest range of soil types and silt content attainable. Installation work at the six sites was completed in the first quarter of 1981, and operational start-up is in progress at all sites. Initial results from the first site to become fully operational are comparable to the data obtained from the Fairbanks installation.

A similar field testing approach is being utilized in other specialized engineering areas, e.g., the development of a suitable pipe insulation system, fracture arrest, and soil stability. The expertise needed to develop satisfactory methods for handling these requirements has been assembled by the project as a means of assuring that the most cost effective design is achieved.

b. Site Specific Requirements

Another important element of the project engineering effort involves site specific requirements. For example, almost one-third of the pipeline location in Alaska is either parallel and adjacent to the Alyeska oil pipeline or the State Haul Road, which connects central Alaska with Prudhoe Bay and the North Slope. To establish a suitable location in these areas the design must give adequate consideration to the adjacent structures.

In some cases, where problems exist due to terrain, cross-drainage, slope stability, or other external factors, the design must be modified. Quite often, the most cost effective solution is to change the gas pipeline alignment so that the problem can be completely avoided.

The necessary interaction between the Alaskan Northwest/Fluor project group, Alyeska, and State/Federal representatives can best be described with an example. The original pipeline alignment included over 60 crossings of the Alyeska oil pipeline system.

Because of the problems involved in several of these crossings, route studies were conducted and the number of crossings reduced to 23. Subsequent discussions with Alyeska engineers have resulted in resolving the design criteria for most of these crossings.

Detailed working sessions have been initiated with both Alyeska and the State for the purpose of resolving all matters pertaining to proximity of the oil pipeline, State Haul Road, and the gas pipeline. These working sessions will involve special engineering groups, comprised of Alaskan Northwest/Fluor engineering, environmental, and construction personnel and engineers and other disciplines from Alyeska and the State. Each working group will have specific tasks assigned and participation will be limited to those who have the knowledge and experience required to resolve specific engineering problems.

c. Environmental Concerns

Equally important, the development of the engineering design for the project includes direct participation by the Alaskan Northwest/Fluor environmental affairs group. Their representatives are working with project design engineers on a continuous basis to assure that environmental requirements are incorporated at an early stage into the development of the design. The early recognition of environmental requirements in the design process will provide a better basis for alleviating sensitive environmental concerns and for obtaining government approval of the basic design prior to the commencement of construction.

d. Alyeska Experience

The risk of cost overruns in the construction of the Alaskan ANGTS facilities has been lessened as a result of completion of the Alyeska oil pipeline. The following points are noted:

-- Both the similarities and differences of the two projects are such that the uncertainties, risks, and potential for cost increases to which the gas line will be exposed are considerably less than was the case for the oil line.

-- Today, much more is understood about the process of building a large diameter pipeline in Alaska -- from a technical point of view and with regard to management, government involvement, infrastructure, and the supply and demand for critical manpower and equipment resources.

-- Transporting chilled gas through permafrost is inherently easier than transporting heated oil in the arctic.

-- The oil line was a pioneer project, built across a tremendous expanse of land that had nothing in the way of support infrastructure, such as highways to the job site and communications systems. To a large extent, the gas line will take advantage of this existing infrastructure. Furthermore, the entire infrastructure in the State of Alaska is now significantly more supportive than what existed in 1971, and much improved technical, managerial, and construction capability exists in Alaska today.

2. Certification Cost Estimate

Simultaneous with the design and engineering of the Alaskan pipeline segment, the Alaskan Northwest/Fluor team has prepared a detailed, fifty-volume cost and schedule estimate for FERC review in accordance with the mandate of the President's Decision and FERC orders implementing the Decision. This estimate was filed with the FERC on July 1, 1980, as revised on October 27, 1980. The total estimate is comprised of a base engineering estimate of the cost of construction, a normal contingency allowance, plus an estimate of the possible cost impacts from abnormal events.

a. Estimate Highlights

The base engineering estimate includes the management, engineering, procurement, construction, testing, and start-up for the Alaskan pipeline segment of the ANGTS from the outlet of the gas conditioning plant at Prudhoe Bay, Alaska to the Canadian (Yukon) Border. The following are the highlights of major facilities.

-- Compressor Stations - Four stations containing one 25,000 horsepower compressor each and three with two such units. Each station will also have a refrigeration system to chill the gas.

-- Metering Stations - One station at Prudhoe Bay, which is combined with the plant's metering facilities, and one at the Yukon Border.

- -- Operations and Maintenance Facilities - One leased facility at Fairbanks and three other facilities located at compressor stations.
- -- Temporary Facilities - camps, airfields, warehousing, freight, and office space.
- -- Communications and Supervisory Controls Systems - Utilizes existing and new facilities, land-based and satellite.
- -- Pipeline - 745 miles of arctic grade 48" main line pipe. It is planned that pipe will be purchased in 40-foot lengths, and a central Fairbanks facility will be used for all double jointing (welding two 40-foot lengths of pipe into an 80-foot length), coating, and insulation.
- -- Project Directorate - All Northwest Alaskan activities; Project Management Contractor management and consultants' activities; pre-certification efforts including cost sharing studies; third-party monitoring (State of Alaska, Department of the Interior, and Federal Inspector), and permits, insurance, and taxes.

b. Estimate Components

The base engineering estimate equals $7.08 billion, excluding all contingencies and an amount covering abnormal or unexpected events. In accordance with standard cost estimation practice, a contingency of 12 percent was then added to the base estimate to account for normal estimating uncertainty concerning accuracy of material quantities and prices, human productivity assumptions, equipment reliability assumptions, normal schedule variances, and the accuracy of bid specifications based on current project definitions.

The normal contingency was developed by segregating the base cost estimate into individual risk items and establishing variance ranges for each item. This data was statistically examined on a computerized risk analysis model.

In addition to these estimating uncertainties, Alaskan Northwest faces risks arising from abnormal or unexpected events that could affect project costs. Under the FERC approved IROR procedure, the risks posed by these abnormal events and the resulting potential costs are to be quantified to aid the FERC in establishing a target cost for the ANGTS for IROR purposes. This analysis was also performed to establish a target cost for financing purposes to determine the possible range of cost increases due to events not subject to Alaskan Northwest's control.

Alaskan Northwest carefully analyzed the potential cost impact arising from 36 abnormal or unexpected events, such as strikes and work slowdowns, abnormal weather, unanticipated pipeline mode changes, unanticipated changes in domestic and world markets for labor, materials, and services, unanticipated environmental conditions, contractor failure to perform, contractor bankruptcy, and others.

After the 36 abnormal events were identified, experts from Northwest Alaskan, Fluor, and selected outside consultants defined the probability of occurrence of each event classified as abnormal.

The same experts also evaluated the range of potential cost impacts if the event did occur. The assumptions in the engineering estimate which related to the event were reviewed, and values were established to represent the incremental costs of each event.

The cost ranges and probabilities for the 36 events were then used to determine the total potential impact of abnormal events on project costs. A computer simulation was employed to determine the range, distribution, and expected value of costs resulting from abnormal events. This simulation consisted of 1000 random samplings of each event. The results of this analysis indicate that such events could increase project costs by as much as $2.28 billion.

The Alaskan Northwest cost estimate, including the base estimate, contingency, and abnormal events, totals $10.2 billion in 1980 dollars excluding certain revisions to be filed shortly with the FERC and excluding finance charges, and has been the subject of intensive and in-depth analysis by the FERC staff, the Office of the Federal Inspector, the State of Alaska, and the three North Slope producers over the past fifteen months. The Federal Inspector retained Williams Brothers Engineering Company to assist in this effort. A final report on such estimate has been issued jointly by the FERC's Alaskan Delegate and the Division Director of the Office of the Federal Inspector and noticed for comment by the FERC. All comments have now been filed with the FERC, and a decision is expected to be issued in the near future.

B. Prudhoe Bay Gas Conditioning Plant

1. Design

The gas conditioning plant is being designed and engineered by the Ralph M. Parsons Company of Pasadena, California, which is the Project Management Contractor for the conditioning plant. Parsons is eminently qualified to design and engineer the plant, having more engineering experience at Prudhoe Bay than any other firm. In this effort, Parsons works closely with and under the supervision of Northwest Alaskan, which has been designated the operator under the terms of the Cooperative Agreement between the sponsors and major North Slope producers and which, as such, has responsibility for the day-to-day activities necessary to engineer and design the plant.

The plant will receive gas from the Prudhoe Bay producing areas and will condition the gas to pipeline quality by removing impurities, carbon dioxide, and heavier hydrocarbons. Because the pipeline will be operated as a chilled, high pressure line and because the first compressor station is at about milepost 80 of the pipeline, the plant will also refrigerate the gas to 30° F. and compress the gas to 1260 psig. The plant design is based on the SELEXOL process, a patented process licensed by the Allied Corporation (formerly Allied Chemical Corporation), for removing carbon dioxide and heavy hydrocarbons.

In addition to the conditioning facility, the plant will consist of an operations center, a 288-bed residential facility, a crude cooling unit, a river water intake station, a reservoir intake station, a flare and waste water lagoon area, construction pads, access roads, and miscellaneous pipelines.

Most of the plant conditioning facilities will be prefabricated as modules at construction sites on the West Coast and then shipped to Prudhoe Bay by ocean-going barges, where they will be assembled.

Parsons has performed a great deal of the design, engineering, planning, and cost estimating for the plant, having expended over 400,000 workhours to date in this regard.

The FERC environmental staff has prepared both a draft and a final environmental impact statement, which conclude that construction and operation of the plant at the Prudhoe Bay site are environmentally acceptable. The environmental impact statement has fulfilled all the National Environmental Policy Act requirements.

2. Cost Estimate

The cost and schedule estimates for the plant are similar to and patterned after those submitted to the FERC for the Alaska pipeline segment. The target cost for the plant is composed of a base engineering estimate and a contingency. The base engineering estimate has been cast into a work breakdown structure similar to that developed for the Alaska pipeline segment for cost control purposes. The contingency is also similar to that for the Alaska pipeline segment, except that it also covers cost impacts from abnormal events as well as normal estimating uncertainty. Examples of abnormal events that could cause the plant cost to overrun estimated costs are abnormally severe weather affecting fabrication sites, loss of a barge during the voyage to Prudhoe Bay, and a major fire at the plant construction camp. The total cost estimate for the plant, in 1980 dollars, is $3.6 billion excluding financing charges, but including contingency for the events described above.

C. Construction Coordination and Logistics for the Plant and Pipeline

Coordination of the design and engineering of the Alaska pipeline segment and the gas conditioning plant is performed by Northwest Alaskan as operator under the Alaskan Northwest partnership agreement and under the Cooperative Agreement. A Northwest Alaskan project team is located at the Irvine, California facilities of Fluor and works very closely with the PMC in connection with the design, engineering, and construction of the Alaska pipeline segment. A Northwest Alaskan project team is also located at the Pasadena, California facilities of Parsons where the plant is being designed and engineered.

The schedules for both the Alaska pipeline segment and plant are coordinated by Northwest Alaskan, with key dates and schedule requirements of the plant tied to the completion date for the Alaska pipeline segment. Meetings of the Technical Committee of the Design and Engineering Board, composed of representatives of the pipeline sponsors and producers, are held monthly. The Technical Committee receives progress reports on the Alaska pipeline segment and plant and makes recommendations to the Board on major issues affecting the pipeline and plant.

In addition, in order to eliminate or minimize delays or cost increases resulting from competition for resources between the Alaska pipeline segment and plant, a Resource and Logistics Committee was formed from members of the Northwest Alaskan pipeline and plant project management teams to identify areas where activities on one project could have an adverse impact on resources necessary for the other, such as craft labor availability, material acquisition, and transportation services.

To further reduce the potential for delays in the completion of the Alaska pipeline segment and plant, construction and material acquisition schedules have been planned to eliminate bottlenecks. The more difficult construction on the Alaska pipeline segment, such as laying pipe over Atigun Pass and major river crossings, will begin in advance of less difficult construction. For both the Alaska pipeline and plant segments, equipment with long lead times, such as compressors and refrigeration systems, must be ordered as soon as possible in order to avoid delay in the delivery of such equipment to the field. More particularly, plant equipment must be fabricated in the lower 48 states on a schedule that will assure it reaches Prudhoe Bay during the approximately six week period each summer that the Beaufort Sea is not ice bound. Additionally, 75 percent of the mainline pipe will be stockpiled in Alaska prior to the commencement of construction.

In the event that construction problems should arise, provisions have been made in the cost estimate for the Alaska pipeline segment, which is being reviewed by the FERC, and in the target cost estimate for the plant, which will shortly be submitted to the Commission, for additional costs necessary to overcome the problems. Thus, even if problems arise, notwithstanding our efforts to minimize the likelihood of their occurrence, the project has been planned and engineered in such a manner that they should not cause serious or extended delays in project completion.

V. ANGTS CAPITAL COSTS

The ANGTS will be constructed in two phases. The first phase, which is referred to as the pre-build, has been partially constructed and will be completed in 1982. When completed, this phase will include 1,500 miles of pipeline or about 30 percent of the total pipeline system. However, it represents only about 8 percent of the total capital costs in 1980 dollars. The second phase involves completion of the remaining portions of the ANGTS by November 1986, assuming expeditious legislative and regulatory action by the second quarter of 1982.

Based upon this schedule, the total system is estimated to cost $17.5 billion in 1980 dollars excluding contingencies and financing costs. Contingencies have been added for possible normal estimating errors and for abnormal events which may occur. These contingencies and allowances for abnormal events, which vary for the conditioning plant and each major pipeline segment, total $5.5 billion in 1980 dollars and represent 31 percent of the base estimate. The 1980 dollar estimate of $23.0 billion, including contingencies, consists of $3.6 billion for the conditioning plant, $10.8 billion for the Alaska pipeline segment, $5.8 (U.S.) for the Canadian segment, and $2.8 billion for the Eastern and Western legs in the lower 48 states. Of the $23.0 billion estimate, the pre-build phase of construction is estimated to cost $1.7 billion and the second phase construction is estimated to cost $21.3 billion.

Because these estimates are in 1980 dollars, it is necessary to add inflation and interest costs to estimate the amounts that must be financed. We have used a range of inflation and interest rates for this purpose from 7 percent to 11 percent and 10 percent to 14 percent respectively in the United States. The resulting range of cash requirements to construct the total system is $38.7 billion to $47.6 billion. The pre-build phase is estimated to be completed for $2.4 to $2.7 billion. Therefore, the net required amount to finance the remaining ANGTS facilities is $36.3 to $44.9 billion.

VI. MARKETABILITY

In order to determine the economic viability of the ANGTS, it is necessary to first estimate the delivered cost of the gas and then compare that to the cost of alternative fuels. The delivered cost of Alaskan gas will include all fixed and variable costs such as the wellhead cost of gas, depreciation, operating and maintenance costs, all taxes, return on equity and interest costs. These costs, when deflated to 1980 dollars, average from

$4.65 to $5.10 per million Btu's during the first twenty years of the project. Stated in constant dollars, this cost declines dramatically during the life of the project. For example, the delivered cost ranges from approximately $9.20 to $9.35 per million Btu's in the first year and from approximately $2.75 to $3.20 per million Btu's in the twentieth year. This dramatic decline occurs because of the amortization of the investment over the project life. Therefore, in real dollars, the cost of delivering Alaskan gas to consumers will decline significantly over the project life. This declining real cost is the basis for the bargain that Alaskan gas represents for the nation and should insure its marketability over the life of the project.

The factors which will be most influential in continuing a market for Alaskan gas are increasing constant dollar world oil prices, the demand for and declining availability of natural gas supplies in 1986-87 and thereafter, and the method by which Alaskan gas is priced to compete with oil.

The long term outlook is for an increase in real world oil prices. In an environment of rising constant dollar prices for oil, Alaskan gas will become increasingly attractive compared both to oil and to alternative gas supplies whose prices escalate with oil. Rising oil prices tend to stimulate the demand for gas at the expense of oil. Since a major portion of existing industrial and power generation plant capacity is designed for both oil and gas firing, rising oil prices quickly shifts demand to gas. In addition, prices for most supplementary gas supplies -- such as

Mexican and Canadian gas -- are linked to oil prices. Thus, rising real prices for oil make Alaskan gas -- the price of which is not linked to oil prices -- increasingly attractive relative to oil and to most other supplemental gas supplies. Finally, Alaskan gas will become an increasingly better buy than imported oil because as the real price of oil increases the real price for Alaskan gas delivered to U.S. consumers will decrease. The cost of Alaskan gas will decrease as depreciation reduces the rate base upon which transportation charges and related income taxes are calculated, which costs comprise the largest components of the delivered price of Alaskan gas.

Some estimates of future natural gas demand have been steadily reduced as a result of the extent to which natural gas demand has been responsive to increasing prices established by the NGPA. Although demand forecasts are down, the long-term outlook for production is down even more. Increasing drilling rates will be unable to offset the steady decline in gas reserves added per unit of drilling effort. As a result, the production rates will continue to decline. By 1987, when Alaskan gas will be available, the decline of conventional lower 48 gas supplies will have created a strong demand for Alaskan gas.

This supply-demand imbalance is illustrated in Tables III-I and V-I of the marketability study prepared by Jensen Associates, Inc., which is attached as Appendix E to my statement. Table V-I illustrates the forecasted demand for natural gas by residential and commercial sectors, industrial sectors, electric power generators, and other users through 1990. Table III-I shows the gas supplies projected to be available during the same time period from conventional and unconventional production, imports, synthetic gas, and Alaskan gas. Table III-I and V-I reflect market clearing after deregulation of new gas volumes in 1985.

The economic benefit of Alaskan gas is illustrated by the graph that I have attached to this statement as Appendix F. This graph shows the delivered cost of Alaskan gas for a range of assumptions regarding inflation and interest rates. Also shown is the estimated market clearing price for natural gas prepared by Jensen Associates, Inc. Two market clearing price estimates are shown. One is based upon the oil cost which Jensen expects would occur under the type of price formation typical of the 1970s during which occasional market disruptions periodically drove prices sharply higher. The other is based upon a lower bound possibility for oil prices. This graph shows that if only one major disruption occurs in the Mid-East resulting in significant increases in oil prices in the decade of the 1980s, Alaskan gas will be marketable from the very beginning of its availability. If a more conservative increase in oil prices occurs, there will be about three years when the Alaskan gas cost is higher than other supplemental gas supplies. However, in addition to the rolled-in pricing capacity afforded by the NGPA, there are other methods available which can be used to levelize charges for Alaskan gas to avoid this early-year problem, if required. We are confident that through a combination of the increasing real price of oil and, if necessary, such levelizing methods Alaska gas can be marketed commencing in 1987.

Concerns also have been expressed about the marketability of Alaskan gas under complete natural gas deregulation. In a deregulated environment, the price of Alaskan gas will adjust to the marketplace and be saleable. As stated above, the price in the early years can be adjusted if necessary through tariff and/or contractual provisions to assure that Alaskan gas is marketable.

VII. NATIONAL BENEFITS

The benefits of completing the ANGTS are self-evident. This vital transportation link will connect the lower 48 states to 26 trillion cubic feet of proven natural gas reserves, or 13 percent of all domestic gas reserves, and over 100 trillion cubic feet of potential reserves in Alaska. Once the ANGTS is in place, gas exploration activities will increase in Alaska and Canada making additional reserves available for transport. The ANGTS will deliver two billion cubic feet of gas per day initially and can easily be expanded to deliver 3.2 billion cubic feet per day.

Construction of the ANGTS can displace between 400,000 and 600,000 barrels of foreign oil per day for the next twenty to thirty years. The resulting savings in foreign payments for oil is in excess of $7 billion in the first year alone, assuming a conservative cost of oil of $50 per barrel in 1987. An even greater reduction in balance of payments will occur later as world oil prices rise, as Alaskan gas volumes increase, and as the delivered price decreases. These balance of payments savings will have a positive impact on the inflation rate.

The ANGTS will create jobs for U.S. workers and orders for U.S. businesses to provide materials, equipment, and services in connection with the construction and operation of the pipeline and related facilities. There will be a peak work force for the Alaska gas pipeline and gas conditioning plant of 16,000 workers.

As the Net National Economic Benefit Study prepared for the project shows, the present value of the Alaskan gas that the ANGTS will bring to the lower 48 states is likely to be between $90 and $140 billion. */ The total present cost of delivering this gas (including the wellhead cost of the gas) is approximately $50 billion over the 25-year project life. Accordingly, the present value of the net benefits of the ANGTS is between $40 and $90 billion for all U.S. parties associated with the project. For our base case, we use the median gas value of $110 billion, which yields a median Net National Economic Benefit of $60 billion. All of the above values are in January 1980 dollars, discounted in real terms at three percent to mid-1981.

In conclusion, the conservative direct net national economic benefit of the ANGTS -- economic benefits minus costs -- is in

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*/ These values are the mode and expected value for the gas value, respectively. The NNEB study is attached as Appendix G to my statement.

excess of $60 billion. This is simply the benefit derived from the market value of the gas and does not include the indirect benefits, such as increased energy independence, improved balance of payments, the creation of jobs, or the cost savings that would result if Alaskan gas prevents a repeat of the phenomenon experienced throughout the 1970s -- curtailments of industrial gas customers with resulting economic dislocations, including a loss of jobs, a reduction in taxes, and increases in unemployment compensation.

VIII. REMAINING GOVERNMENTAL AND REGULATORY APPROVALS

A. Alaskan Northwest

Alaskan Northwest must file with the Federal Energy Regulatory Commission a supplement to its prior filed application for a certificate to construct and operate the Alaska pipeline segment of the Alaska Natural Gas Transportation System. This supplement will include: (1) a plan for private financing and related materials including a cost of service study, a marketability study, and a net national economic benefit study which demonstrate the continued economic viability of the ANGTS; (2) amendments to its prior approved tariff which conform to the financing plan; (3) any necessary amendments to the prior approved partnership agreement to conform to the financing plan; and (4) minor adjustments to the cost estimates previously filed with the FERC in 1980.

Assuming the waiver proposed is enacted by Congress, Alaskan Northwest must also file an amendment to its prior filed application seeking certification of the gas conditioning plant and approval of a tariff governing recovery from the shippers of the plant investment plus a reasonable rate of return on such investment.

Pursuant to Sections 4, 5, 7, and 16 of the Natural Gas Act, the FERC is empowered to issue a final certificate to Alaskan Northwest if it finds that Alaskan Northwest is able and willing to provide the transportation service and to conform to the provisions of the Natural Gas Act and the Commission's rules and regulations, that the rates and charges of Alaskan Northwest are "just and reasonable," and that the proposed service "is or will be required by the present or future public convenience and necessity."

The Commission must examine a number of factors in determining whether issuance of the certificate is in "the public convenience and necessity." For example, the Commission must find that the project is economically feasible, that the project can be financed under terms acceptable to the Commission, and that the proposed tariffs are just and reasonable and in the public interest. One important point must be emphasized. Congressional approval of the proposed waiver will not relieve the FERC of its responsibility to satisfy itself that these requirements have been met prior to issuance of a final certificate to Alaskan Northwest.

Additionally, Alaskan Northwest also must obtain from the State of Alaska appropriate land use authorizations for those portions of the pipeline and conditioning plant that will be on lands in which the State has an interest.

B. Northern Border and Pacific Gas Transmission

In addition to issuance of a final certificate to Alaskan Northwest, the Commission must also issue final certificates of public convenience and necessity to the Northern Border Pipeline Company and the Pacific Gas Transmission Company enabling them to complete the non-pre-built portions of the U.S. Eastern and Western Legs of the ANGTS. The Commission review process and the legal requirements described above are equally applicable to these applications, and Congressional approval of the proposed waiver will similarly not relieve the FERC of the ultimate responsibility to ensure that these requirements have been satisfied.

C. Shipper Tracking

The shippers of Alaskan gas must seek Commission approval of tariffs which permit them to flow through to their customers the sales price of Alaskan gas and the conditioning and transportation charges to be paid by them under the FERC or the Canadian National Energy Board approved tariffs. While the Commission has not yet reviewed such tariffs, it has addressed the need for what is referred to as "perfect tracking." In its Orders 31 and 31-B approving the Alaskan Northwest and Northern Border tariffs, the Commission noted that the financial and economic viability of the ANGTS is dependent not only upon tariffs which assure a constant stream of revenue from the shippers to the ANGTS, but also upon adequate "tracking" mechanisms in the shippers' tariffs which will permit sufficient revenues to flow, without interruption, to each shipper from its customers to reimburse each shipper for payment of ANGTS costs. Specifically, in Order 31 the Commission stated at page 147 that it:

> . . .shares the project sponsors' assessment of the importance and relevance of the tariffs. The tariffs are indeed the "economic lifeline" of the project. There must therefore be a degree of certainty for project sponsors and potential financers adequate to ensure that there will be a flow of revenues sufficient to service debt and all other current expenses once billing has been allowed to commence.

With respect to shipper tracking, the Commission found at page 67 that:

> In order to further assure that revenues are adequate to cover the cost of service of the project, the Commission's policy will be to allow automatic tracking of Alaska gas transportation costs in the tariffs of gas shippers who are interstate pipelines under our jurisdiction. (Emphasis added).

Again, as with the other FERC filings, once the shipper tariffs are filed with the FERC, the FERC must review such tariffs under the standards of the Natural Gas Act and the proposed waiver does not restrict that review.

IX. FINANCING

The framework of the negotiations now under way to establish financing for the project and the related financial bases for the proposed waiver can best be understood by reviewing their historical underpinnings and development. Before detailing the evolution of the financing, however, it should be pointed out that the President's Decision reflected an expected cost of the ANGTS, as then defined, of $13 billion, and an expected date of first deliveries of gas of January 1983. While all parties understood that many governmental approvals would have to be obtained and that many agreements among the parties would have to be negotiated before construction could begin, nonetheless in 1977 it was anticipated that regulatory and policy questions would be answered in one to two years. Thus the 1977 cost estimate and the accompanying financing requirements were based on long-term debt costs of ten percent, cost contingencies of five percent, and cost escalation due to inflation was anticipated to be five percent annually.

In hindsight, the uniformly agreed upon assumptions underlying the 1977 cost estimate and the then-scheduled in-service date were unrealistic. But capital market conditions were stable in 1977, at least in comparison with today's environment, and government policies were stongly supportive of energy projects.

Much that was anticipated by the project sponsors and the government agencies which reviewed and confirmed the reasonableness of the assumptions underlying the project have not materialized.

A. Financing Parameters Established by the Federal Government

The President's Decision set forth the determination that the project could be privately financed and the conditions under which a private financing was expected to occur. A plan was proposed to share the risks and benefits of the project among its several beneficiaries in accordance with the following principles:

1. The project should be privately financed.
2. The equity investment in the project should be at risk under all circumstances.
3. Direct and major beneficiaries of the project should participate in the financing either directly or in the form of debt guarantees.
4. The burden of cost overruns should be shared by equity holders and consumers upon completion through the application of a variable rate of return on common equity. This would provide a strong incentive for the project to be constructed at the lowest possible cost.
5. Tariff charges could not commence prior to completion and commissioning of the system.

The President's Decision also established other critical parameters for the financing plan: a prohibition of producer equity investment in the project; the exclusion of the conditioning plant from the ANGTS; and a prohibition of direct or indirect government financial support, including guarantees. Finally, the plan described in the Decision contemplated the "project financing" of all debt, i.e. the assets and cash flow of the project -- its economic viability -- would provide the principal source of credit to lenders. Sponsors were not expected to extend their corporate credit in support of the project's debt.

Following the Decision, the FERC undertook to clarify the provisions in the President's Decision regarding commencement of consumer billing. In Orders 31 and 31-B the FERC ruled that billing could begin after the Federal Inspector certified that all ANGTS pipeline segments were completed, tested, and proved capable of operating. "Tested for service," according to the FERC, did not require that the line be filled with gas or that actual deliveries of gas begin. Moreover, it is important to note at this juncture that there was not a requirement that the conditioning plant be completed and rendered capable of service as a prerequisite for billing commencement. Thus under current law billing can commence on all four pipeline segments even in the unlikely event that the conditioning plant is not completed, and even if actual gas deliveries have not begun.

B. Original Sponsor Financing Plan

The principal financing parameters having been established by the President's Decision, Alaskan Northwest and its financial advisors in early 1978 initiated the development of a definitive financing plan. The original plan contemplated the following key elements:

1. The construction capital for the Alaska pipeline segment would be raised on a project financing basis without corporate or government completion guarantees. Funding for the conditioning plant would not be the responsibility of Alaskan Northwest.

2. In the absence of completion guarantees, the risk of non-completion of the Alaskan pipeline would be reduced to an acceptable level as follows:

a. The project's final cost estimate would be subject to an independent risk analysis and an overrun probability assessment that would determine the amount of an Initial Pool of capital required to reduce to an acceptable confidence level the chance that the project would not be completed. Commitments for the equity portion of the Initial Pool would be provided by the project's gas transmission company sponsors. Debt commitments would come from U.S. and foreign commercial banks and U.S. insurance companies and equipment and material suppliers.

b. Commitments would also be obtained for a second capital pool, a Completion Assurance Pool, which would be available in the unlikely event that project costs exceed the Initial Pool. The Completion Assurance Pool would be drawn down based on periodic comparisons of actual to estimated construction costs to date. Commitments for the debt portion of the Completion Assurance Pool would be supplied by the Alaskan gas producers and the equity portion shared by the sponsors and the producers, in a manner consistent with the President's Decision.

c. Both capital pools would be irrevocably precommitted prior to the commencement of construction.

d. Whenever possible fixed price contracts for equipment and, perhaps, turn-key contracts for the construction of certain portions of the project would be negotiated. Such contracts would remove significant parts of the project from the risk of overruns.

3. Once completion was achieved, credit support for the project's debt would be provided through the FERC approved minimum bill gas tariff which would assure the payment of the project's debt service under all circumstances. Based on the tariff and a perfect tracking mechanism, financing commitments would be secured from institutional lenders for a portion of the commercial bank financing. In addition, public debt markets could also be used to refinance construction loans.

In summary, the plan was (i) to remove a major portion of the project's cost estimate from the risk of overruns through fixed price contracts and turn-key construction contracts; (ii) to obtain firm commitments for equity capital and supplier credits; and (iii) to secure irrevocable commitments for a Completion Assurance Pool of sufficient size to complete the project under any and all foreseeable circumstances. Debt commitments would then be obtained from commercial banks and institutional lenders subject to satisfaction of an extensive list of conditions precedent.

C. Efforts to Arrange Financial Support from the State of Alaska and the North Slope Producers

1. State of Alaska

Alaskan Northwest and its financial advisors devoted much of 1978 and 1979 to seeking the financial support of the State of Alaska, support which was envisioned by the President's Decision, in an amount of approximately $2 billion. The plan proposed to the State and supported by its Governor included the issuance by a state agency of $1.5 billion in tax-exempt debt, the proceeds of which would be used to purchase project debt. The rationale and appeal of this measure from the project's standpoint was that the State's offering would tap an otherwise unavailable segment of the capital market. Alaskan Northwest, as an issuer of taxable securities, is unable to raise funds from tax-exempt investors, many of whom who control large pools of capital. The proposal also contemplated the issuance of $500 million of equity securities to the State, the income of which would add substantially to the enormous economic, fiscal, employment, and social benefits that the State will realize from the project.

This specific plan was not approved by the State legislature, but a special committee was formed to analyze State financial participation. Alaskan Northwest would welcome the State's active participation in the financing.

2. North Slope Producers

Commencement of negotiations with producers was seriously delayed because of unsettled legislative and regulatory issues completely out of the control of Alaskan Northwest. First, there was the uncertainty surrounding resolution of the Natural Gas Policy Act of 1978. The NGPA, among other things, established the wellhead pricing of Alaskan gas, the duration of its regulation, and the manner in which it will be priced by pipeline purchasers. Secondly, the development of the Incentive Rate of Return mechanism, including the key rate of return parameters, was not fully completed until September 1979 -- two years after the President's Decision. Finally, FERC approval of the project design specifications for pipe diameter and design pressure was not final until January 1980. Only after all of these critical issues were laid to rest was it possible to prepare a definitive cost estimate for regulatory and financing purposes. Not until that point could truly meaningful discussions setting the framework for the producers' financial involvement in the project begin.

In the fall of 1979, a month after settlement of the Incentive Rate of Return proceeding, a financing plan was presented to the Alaskan Northwest partners for their approval, thereby setting the stage for the commencement of negotiations with the North Slope producers. This financing plan was essentially the same as that described earlier as the original sponsor financing plan and was fully in compliance with all of the requirements of the President's Decision.

The first meaningful indication of specific producer willingness to support the financing of the project became evident in late 1979. From the outset, the producers' principal requirements for involvement in the financing were (1) that the President's Decision be altered, by waiver or otherwise, to permit the producers to own equity with full and proportional rights and benefits of equity ownership, and (2) that the conditioning plant be included in the ANGTS with provision for inclusion of all gas conditioning and processing charges in the ANGTS gas tariff. Neither of these producer requirements were permitted by the President's Decision.

The Department of Energy, through the Secretary and the General Counsel, served as an intermediary between the sponsors and producers to assist in negotiations. By March 1980, after numerous meetings and lengthy discussions, an initial set of conceptual agreements between the sponsors and producers was reached.

The principal accomplishment of these efforts was a Cooperative Agreement adopted in April 1980 and signed in June 1980 providing for the joint funding by the producers and sponsors of design, engineering, and cost estimation work for the Alaska pipeline and the conditioning plant. A second agreement, a Letter of Intent (which is attached as Appendix H), was entered into by Alaskan Northwest and the producers committing all parties to work expeditiously towards arranging a private financing of the project.

By May 1981, Alaskan Northwest and the producers agreed to approach the financial community with a financing plan embodying the following concepts:

1. For purposes of financing, the "as spent" cost of the Alaskan pipeline will be $21 billion and of the plant

will be $6 billion. In addition, a pre-committed completion assurance pool of $3 billion will be formed.

2. The debt/equity ratio for all capital investment will be 75:25.

3. The investment limits of all participating companies will be defined from the outset. As a group, the transmission companies will provide equity in an amount not to exceed $5.25 billion. As a group, the producer companies will provide equity in an amount not to exceed $2.25 billion.

4. The Alaskan Northwest partners will own 70% of the pipeline and the plant, and the producing companies will own 30% of the pipeline and the plant. Equity commitments to the completion assurance pool will be made on the same 70:30 ratio.

5. Debt funds (pipeline and plant) will be sought on a project credit basis. The transmission group will be responsible for arranging for $15.75 billion in project debt. The producer group has accepted responsibility for arranging for $6.75 billion in additional project debt. The debt which the producers are responsible for arranging will be accorded terms and conditions equivalent to those accorded other project debt.

6. Each company's participation will be subject to satisfaction of conditions precedent, namely:

   -- The conditioning plant will be included as part of the Alaska segment of the ANGTS.

   -- Each company's investment will be limited to a sum certain defined in the financing plan.

   -- All debt and equity participants will issue firm commitments, acceptable to all other participants, prior to construction of the pipeline or plant.

   -- All necessary governmental approvals and authorizations will be issued and accepted by the participants.

   -- All parties are assured that the project is economically viable.

   -- All parties are assured that the Canadian segment will be financed and completed without U.S. commpany involvement.

-- Each financing layer will be afforded equal terms and conditions.

D. Comparison of Original Sponsor Financing Plan and Sponsor/Producer Agreement

The May 1981 plan deserves elaboration to be fully understood in relation to the original cost estimate and financing plan detailed in the President's Decision. The basic cost estimate in the plan reflects substantial cost additions over the $13 billion estimate in the President's Decision. These cost additions are comprised primarily of (1) the $6.0 billion conditioning plant not provided for in the 1977 plan, (2) costs resulting from the more extensive design features which evolved in the past four years in contrast to the cost of the design originally contemplated, (3) cost escalations resulting from the delay of four years in the anticipated completion date because regulatory proceedings took more time than had been anticipated in 1977, (4) the abnormally high rates of inflation experienced in the U.S. since 1977, and (5) the unusually high long-term interest rates prevailing in the last few years which now may be subsiding. To reiterate what was said earlier, the 1977 plan for the $10 billion project was based on a 1975 dollar year estimate, escalated by five percent per annum to year of expenditure with a contingency of five percent and interest costs of 10 percent.

The May 1981 financing plan differs in material respect from the original sponsor plan also because of the requirements of the producers as conditions for their financial support for the project. Further, the funding assumptions reflect the absence to date of State of Alaska support which had been contemplated by the President's Decision. And finally, the most recent plan, unlike that described in the President's Decision, utilizes supplier credits, and Eurodollar and foreign financing for the Alaskan facilities. This expansion of target capital sources provides an element of flexibility, and is necessary as a result of the growth of the financing requirements.

E. Position of U.S. Commercial Bank Lenders

On the basis of the agreement reached by Alaskan Northwest and the producers, the first formal presentation of an ANGTS financing plan was made in May 1981 to four major U.S. commercial bank lenders--Bank of America, N.T.&S.A., The Chase Manhattan Bank, N.A., Citibank, N.A., and Morgan Guaranty Trust Company of New York.

On August 28, 1981 the four-bank coordinating group advised the partnership of the results of its preliminary assessment of the financing concepts, the general availability of debt support for the project, and suggested certain modifications to the approach to financing which the partnership and the producing companies might consider. A copy of this letter, together with its attachments, is appended for review by the Committee as Appendix I. Without re-stating the contents of the August 28 letter in detail, inasmuch as the letter must necessarily speak for itself, it is nonetheless noteworthy for us to underscore certain of the banks' preliminary conclusions, which are, of course, subject to the various conditions and caveats expressed in the letter of August 28.

First, the banks believe that the project can be privately financed without government guarantees or participation.

Second, the banks believe that there will be funds available on a world-wide basis sufficient to provide debt support for the project, within the range of $12-18 billion.

Third, the banks believe that after completion, and when the ANGTS is operational pursuant to satisfactory tariff and tracking arrangements, the credit of the project itself will provide adequate assurances of debt service to the extent that the sponsoring companies will not be obliged to a continuing pledge of corporate credit.

These are very positive results. But this encouragement was tempered by the banks' advice that credit support will be required of the participating companies during the construction phase of the project. In this connection, the banks concluded that the completion pool of funds concept advanced by us will not be perceived by lenders generally to be acceptable, in and of itself, as a basis for debt support during construction. Consequently, the banks have concluded that the bulk of the funds needed for the construction of the project cannot be raised on that basis. Thus, they have advised us, as noted in the letter of August 28, that a modification of our financing proposal should be considered which will permit some degree of debt repayment assurance during the pre-completion phase, involving a combination of (1) acceptable debt assumption arrangements by the sponsors and producers and (2) acceptable commencement of billing provisions prior to completion of the overall system.

The reliance by the banks on corporate credit and limited consumer support during construction may permit a reduction in the external financing requirements for the project. Since there would be a source of repayment for the bulk of project debt, the need to provide pre-committed contingency financing (to assure project completion and/or debt repayment) can be reduced or eliminated and the hopeful mitigation of inflation and interest rates would result in further reduction. The amount of the latter reduction is, of course, subject to the completion of further definitive engineering and cost estimation work. The banks have concluded that ". . . if the required credit support can be arranged, the banks are of of the opinion that a modified plan may well provide the basis for private sector financing of the project."

As to the waivers of law deemed to be necessary by the banks, they have advised, in their letter of August 28, that the level of credit support required to raise the extraordinary amounts of capital to finance the project necessitates that ". . .[t]he debt [of the project] be supported by repayment assurances involving [among other things] acceptable commencement of billing provisions prior to the completion of the overall system."

In short, the banks have advised me that the billing commencement provisions set forth in the proposed waiver are a critical credit support--indeed the absolute minimum--feature required to raise the necessary funds. Passage of the billing commencement features of the waiver package will increase the willingness of the banks and other lenders to participate in the financing in terms of the number of lenders participating and the amount of each lender's commitment to the financing.

In consideration of the circumstances described earlier which have resulted in the extraordinary amounts needed for this project, and the conditions that have developed in our financial markets since the President's Decision--none of which was anticipated in 1977--it is not unreasonable to understand the necessity for providing the limited credit support that lenders are seeking through a separation of the Alaskan pipeline and plant facilities, and the Canadian pipeline segment, for purposes of billing commencement for debt service charges.

F. Risk/Benefit Sharing Objectives of President's Decision Fundamentally Preserved

While the billing commencement waiver insisted upon by the banks would appear to represent a departure from the principles of risk sharing established in the President's Decision, the sponsors, as well as producers, would also be contributing more credit support -- with all its consequential costs and risks -- than was contemplated in the President's Decision. The concept of risk sharing is preserved: because of the greater financial requirements and the more difficult circumstances in which this project must be financed, it is incumbent that all project beneficiaries contribute more to realize the substantial benefits of the huge Alaska energy resource.

To reiterate an earlier point, the waiver provision providing for commencement of billing as each segment is completed is not unprecedented insofar as consumer exposure is concerned. Under current law, the consumer would incur a continuing irrevocable obligation to pay certain ANGTS costs even if gas service did not commence. This would result if all four pipeline segments were completed and commissioned for service by the Federal Inspector but (1) gas was not delivered by the producers to the conditioning plant, or (2) the conditioning plant was not completed.

The proposed waivers represent a recognition of the current reality with respect to consumer risk, not a dramatic wholesale repudiation of the risk/benefit sharing concepts developed in the President's Decision. Consumers would commence paying only for completed segments; they would not incur an obligtion for uncompleted facilities. From the standpoint of consumer cost, the payment for cost of service charges as permitted under the proposed waiver will result in lower charges for gas to consumers over the project life. This will result because carrying costs will not be capitalized and paid for by consumers over the project life in the absence of consumer paymments.

Consumers will be the ultimate beneficiaries of this project, realizing the substantial benefits of a domestic long-term premium source of energy, one of the few supplemental energy supply programs offering declining costs in real terms over the next generation.

G. Impact of the Waivers Upon Private Financing

While there is much that can and will be done while the Congress is considering the proposed waiver of law, it is inescapably true that constructing and implementing a financing plan for the project cannot be accomplished in the absence of affirmative action by both Houses of the Congress on the waiver request. We can say to you categorically that if the waiver is not permitted, private financing is impossible.

Our views with respect to the proposed waiver are dictated by the stark realities of the world credit markets. It is not possible for the financing of this project to move forward so long as the producers of Prudhoe Bay gas are excluded from equity participation in the financing. The equity contributions of these companies, and their support of an appropriate portion of project debt during construction, is essential. The pipeline company sponsors do not have the individual or aggregate financial strength to shoulder the entire financing requirements of the project.

Similarly, it is not possible to construct financing for the project so long as the conditioning plant remains outside the system, subject to uncertainties of ownership, cost recovery, and integration of construction and operation. Gas cannot move through the Alaska Natural Gas Transportation System without the conditioning plant, a fact readily apparent to any prospective lender. The plant must be integrated into the system and covered by the certificate and tariff ultimately determined to be appropriate by the Federal Energy Regulatory Commission for the Alaskan facilities.

With respect to the waiver dealing with regulatory constancy, we cannot overstate our belief that private financing in the world capital markets cannot be successfully arranged unless it can be demonstrated that funds advanced to the project under a FERC-approved tariff and tracking arrangement will not be subject to later change. We would emphasize that the lenders to whom we must appeal will be asked to commit funds on the basis of project credit after the system is operational; they will be asked to lend on the strength of a revenue flow which is derived through FERC tariff mechanisms. If they cannot be reasonably assured that the credit which they analyze and appraise before committing to the project is not subject to change in the future, they cannot, in all probability, lend to the project to the extent that will be required for successful implementation of a financing plan. Under the present state of the law, they have no such assurance. In this regard, we have been made aware of an opinion rendered by the General Counsel of the Federal Energy Regulatory Commission to Chairman Sharp and Congressman Brown dealing with the issue of regulatory constancy, and I have appended to my statement a copy of this opinion for your review. (Appendix J). Given the views there expressed, and our own individual and collective experience in financing gas projects, we must advise you that it will be impossible for us to raise the billions of dollars of debt necessary to support the project if lenders are subject to a change in the rules of the game after their money has been committed and spent.

With respect to the impact on private financing of the waiver of law necessary to permit some flexibility in the commencement of billing for charges upon completion of the Alaskan facilities, we would offer these views. First, during the period of time when the ANGTS is under construction, the project has no revenue flow and essentially no credit in its own right to provide a basis for assurance to lenders that interest and principal will be paid. Thus, during the period of construction credit support must be arranged, and, in the banks' view, this support must come from the participating companies and, to a limited extent, from the consumer beneficiaries of the project. From our prior discussions with some of you and with your staffs, you are no doubt aware that we would have preferred a billing commencement waiver in terms which would permit maximum flexibility and maximum discretion within the FERC to approve, or disapprove, tariff provisions which would accomodate the details of the financing package which we are ultimately able to negotiate on a world-wide basis. But we understand that the degree of flexibility which we sought is not attainable, given the understandable reluctance of the Administration and many of you to sanction a massive shift to the consumer of the risk of noncompletion of the project.

It is our view that the proposed billing commencement waiver is the absolute minimum that will permit us to carry forward our work. Without this waiver we cannot proceed, and with it we can proceed only on the basis that the sponsoring companies will be called upon to assume greater obligations during the period of construction than were originally envisioned by us. With the waiver we can proceed, and we will give our best effort to make the financing work within its constraints.

H. Present Status of Financing Negotiations

On the basis of the views which we have just expressed, we trust it is clear that further progress on the financing of the project is inextricably tied to favorable Congressional action on the proposed waiver of law.

Following the delivery of the banks' letter of August 28 to the partnership, intensive negotiations have taken place among the participants, dictated in large part by the expression of the banks' views that a modification of our financing concepts would be necessary. These negotiations continue, but in all probability cannot be concluded by unconditional commitments until the participants know the Congressional reaction to the proposed waiver of law. Certainly financing cannot be put together on the basis of producer participation if producer participation is unlawful. Certainly financing cannot be put together if there remains uncertainty as to the status of the conditioning plant. Certainly financing cannot be arranged until the spectre of regulatory change is laid to rest. And certainly there can be no definitive financing until the billing commencement issue is resolved.

Progress on financing also hinges on favorable FERC action on our cost estimate. Agreement on capital requirements must be attained, and Commission approval of the cost estimates is not yet in hand.

Despite these major uncertainties, each of which must be resolved by the Congress and the Commission at this stage, the companies which have supported this project for the past years, and which collectively have already spent almost $550 million, are prepared to continue in their strong support of the project. Billions of dollars will be committed by these companies in the form of direct equity contribution and in the form of debt support during construction.

At this juncture we remain optimistic that if the Congress permits the proposed waiver to become effective, and if the Commission reacts favorably to our cost estimate, the private party participants in the project can reach agreement upon the level and degree of equity and credit support which they can each contribute. The aggregate credit so committed, together with the tariff and tracking mechanisms necessary to provide a basis for project credit after the line is operational, will permit us to continue in our determined efforts to meet the challenge of financing this project.

Before addressing the specifics of the waiver package, I would note one further point. A private financing plan can be assembled in a manner that reflects a proper allocation of risks between the principal beneficiaries of the ANGTS--the North Slope producers, the Alaskan Northwest partners, and the consumers dependent upon the Alaskan gas. The project sponsors and producers are willing to continue to accept the risks of non-completion imposed upon them by the President's 1977 Decision because they firmly believe the project can be constructed on time and within budget.

X. PROPOSED WAIVER OF LAW

On October 15, 1981 President Reagan, acting pursuant to Section 8(g) of the ANGTA, transmitted to Congress a proposed waiver of law (attached as Appendix K) which would accomplish four specific purposes, all of which are necessary predicates to private sector financing: (1) permit both debt and equity participation in the project by the Prudhoe Bay producers; (2) include the conditioning plant in the ANGTS and in the certificate to be issued for the Alaskan facilities; (3) permit the FERC to approve, at its discretion, tariffs which will provide lenders with sufficient assurances of debt and/or equity repayment, after individual completion of the gas conditioning plant, the Alaskan pipeline segment, and the Canadian pipeline segment, to warrant their advancing the enormous sums needed for private financing;

and (4) enable the FERC to expedite the issuance of the final certificates for the ANGTS.

I shall now address in detail the reasons why a waiver of each provision of law is required.

A. Public Law 95-158 and the President's Decision

1. Producer Equity Participation

The President proposes to waive Section 1, Paragraph 3, and Section 5, Conditions IV-4 and V-1 of the President's Decision, Pub. L. No. 95-158, to permit producer participation in the ownership of the Alaskan pipeline segment and gas conditioning plant of the approved transportation system.

Conditions IV-4 and V-1 of the President's Decision presently prohibit producer equity participation in the ANGTS, limiting producers to providing debt or debt guarantees. Specifically, Condition IV-4 requires the Alaskan Northwest partnership to be open to anyone, except producers of Alaskan gas. Condition V-1 prohibits such producers from having an equity interest in the ANGTS or having any role in the management, control, or operation of the project.

Waiver of this provision of law would permit the producers to own a equity interest in the project. Despite recognition in the Decision that producers should participate in the financing of the project, the restrictions imposed on the producers by the Decision are incompatible with a meaningful producer contribution to financing. It is not difficult to understand why the producers are unwilling to make a considerable financial commitment to the project without participation in decisions relating to expenditure of funds. Without equity participation and its resulting voice in project management, the producers will not support the project with producer company funds. Without producer support private financing will be impossible.

Since the execution of the Cooperative Agreement and the formation of the Design and Engineering Board, the North Slope producers have been working with the Alaskan Northest partnership in reviewing the pipeline and plant design, the cost estimates, and financing parameters. Their contribution has been valuable given their experience with the North Slope production facilities and the Alyeska oil line. Their continued participation, beyond that required for financing, is needed to help ensure a timely, cost effective completion of the ANGTS.

Concern has been expressed that producer participation in the ownership of the pipeline could lead to restrictions on pipeline capacity expansion or on access to the pipeline by non-owner shippers. Alaskan Northwest is confident that these problems will not develop. First, the producers' equity position will be limited to a minority interest. Second, Section 13 of the ANGTA requires that the FERC include a condition in Alaskan Northwest's certificate which provides that any one who wants to transport gas in the ANGTS must not be discriminated against in the terms and conditions of service on the basis of degree of ownership, or lack thereof. Third, the FERC has jurisdiction under the Natural Gas Act to review any expansion of the capacity of the Alaska segment. Finally, the proposed waiver provides that the FERC, after consultation with the Attorney General, must find that producer participation will not create or maintain a situation inconsistent with the anti-trust laws or create restrictions on access to the ANGTS for non-owner shippers or restrictions on capacity expansions. Thus, the FERC will assure that the producers' involvement and participation is not inconsistent with the anti-trust laws.

2. Prudhoe Bay Gas Conditioning Plant

The President proposes waiver of Section 2, Paragraph 3 (the first sentence) of the President's *Decision*, Pub. L. No. 95-158, to include the gas conditioning plant in the approved transportation system and in the final FERC certificate to be issued under the Natural [illegible] Act, and the application of Section 5, Condition IV-2 of the *Decision* to such plant.

A Prudhoe Bay conditioning plant has been recognized as essential to permit the delivery of North Slope gas to markets in the lower 48 states. The ANGTS has special conditioning requirements for the gas to be transported through the system. Unlike existing gas pipelines, the Alaskan gas pipeline segment will be a high pressure pipeline transporting chilled gas. This requires extraordinary inlet compression and cooling and the removal of a greater than normal percentage of carbon dioxide, water and liquefiable hydrocarbons. Accordingly, gas processing costs for Alaskan gas are much greater than the processing costs that normally occur in the lower 48 states.

The producers' willingness to make a substantial financial commitment to the project also is predicated on the inclusion of the conditioning plant as a part of the ANGTS to permit a recovery of costs associated with constructing and operating the plant, plus a reasonable return on invested capital, pursuant to a FERC-approved tariff.

Inclusion of the conditioning plant within the ANGTS and the Alaskan certificate will require amendments to the pending Alaskan Northwest certificate application at the FERC and Commission review and approval of such application and the plant tariff. Inclusion of the plant in the system will give the FERC the opportunity and the authority to review the plant design and its estimated cost of construction and authority to review and approve the tariff provisions applicable to the plant governing recovery of the plant costs. Nothing in the proposed waiver restricts or modifies the Commission's responsibilities to review the application and tariff and to find that such tariff is "just and reasonable" and in the public interest prior to issuance of a final certificate.

Application of the incentive rate of return mechanism to the conditioning plant would substantially delay issuance of a final certificate. However, the actual construction costs will be reviewed by the Federal Inspector, and only prudently incurred plant costs will be recovered in rates.

3. Billing Commencement

The President proposes to waive Section 5, Condition IV-3 of the Decision, Pub. L. No. 95-158, to authorize the FERC to approve tariffs that permit: (a) recovery of the full cost of service of the Canadian pipeline segment (i) upon completion and testing of the Canadian segment but (ii) not before a date certain, as established by the FERC, to be the most likely date for the entire approved transportation system to commence operation; and, (b) recovery of actual operation and maintenance expenses, current taxes, and amounts necessary to service debt, including interest and scheduled retirement of debt for both the Alaska pipeline segment and the gas conditioning plant (i) upon their individual completion and commissioning but (ii) not before a date certain, as established by the FERC, to be the most likely date for the entire approved transportation system to commence operation.

Condition IV-3 of the President's 1977 Decision prohibits any tariff which would require the purchaser or ultimate consumer to pay any charge with respect to the pipeline at any time prior to completion and commissioning of the entire pipeline system. In Orders 31 and 31-B the FERC approved a tariff for Alaskan Northwest which provides that upon completion and commissioning (a government agency declaration that the system is ready to operate) of the ANGTS, the risk of service interruption or project failure is assumed by consumers. Specifically, under Commission Orders 31 and 31-B the FERC approved tariff permits Alaskan Northwest to charge a rate which will recover actual operating and maintenance expenses, current taxes, and debt service, including interest and scheduled debt retirement (but not return of, or on, equity investment), upon completion and commissioning of the pipeline segments of the ANGTS, before gas is actually transported or before completion of the gas conditioning plant.

The proposed waiver would permit the FERC to approve, at its discretion and only after a finding that the public convenience and necessity is served, a tariff permitting billing to commence for each individual segment of the ANGTS -- the gas conditioning plant, the Alaskan pipeline segment, and the Canadian segment of the ANGTS -- upon their separate completion and commissioning, but not before a target operation date established by the FERC.

It is important to note that the FERC in effect has already approved a tariff which permits billing to commence upon completion of the Alaskan Northwest, Foothills, and lower 48 segments, but prior to completion of the plant. The proposed waiver further divides the Alaskan Northwest and Foothills segments for billing commencement purposes. It is also important to note that the proposed waiver would not eliminate the authority of either the U.S. or Canadian government to certify that completion and commissioning of each individual segment has occurred.

a. Risk Of Non-Completion Of Any One Segment

It is extremely unlikely that any segment would be completed and commissioned but another not be completed and commissioned. First, the project sponsors and regulatory authorities will assure coordinated construction. FERC Order 31-B states that: "The Commission expects that U.S. and Canadian monitoring authorities will be doing everything in their power to ensure that all facilities associated with delivery of Prudhoe Bay are completed simultaneously and that gas will begin to flow immediately upon their completion. The Commission expects to use its authority to facilitate attainment of that objective whenever possible". (Order 31-B at 69). In addition, "the various controls and oversight authority granted to the Federal Inspector encourage coordination and timely commencement of service." (Order 31 at 161); second, the most difficult portions of the project will be constructed first; third, the U.S. sponsors will not receive a return of or on equity until the entire system is completed and gas deliveries commence; fourth, anything but simultaneous construction would result in unnecessary carrying costs on money; and finally, no charges can be made before the target operation date, which will be established by the FERC as set forth in the President's proposed waiver.

b. Sponsor/Lender Risks

No charges can be assessed for any single one of the three segments until it is completed and commissioned. Thus, investors in such a segment would bear the loss associated with its non-completion. Consumers would pay the minimum bill for any completed and commissioned U.S. segment only after the target operation date and/or the full cost of service for the completed and commissioned Canadian segment, also only after such target operation date. If none of the three segments is completed and commissioned, the tariff does not operate, and consumers pay nothing.

Only when the entire system is completed and operating and consumers begin to receive Alaskan gas can Alaskan Northwest begin to earn a return of and on the equity it invests in the project. Thus, Alaskan Northwest and the producers' equity will remain at risk until gas flows and thereafter depending on the cause and extent of any service interruptions.

c. Consumer Cost

While the proposed waiver could require consumers to pay some of the costs of a portion of the entire system pending the delivery of gas, the average residential consumer would pay only $.32, $.80, or $.98 per month after the target operation date depending on which segment was not completed. The important point to remember, however, is that costs are being recovered currently thereby eliminating carrying charges that otherwise would be capitalized and paid for by consumers in rates over the life of the project. The FERC has recognized that this form of minimum bill actually reduces the finance charges to be borne by consumers when service commences. (Order 31 at 161).

d. Canadian Considerations

In May 1980, the National Energy Board of Canada, after extensive review and formal proceedings, found that a tariff would be needed in Canada which would allow the Canadian companies to charge their full cost of service when the Canadian segment was completed. The National Energy Board took this action before it approved the pre-build construction of a portion of the Canadian segment and related gas exports in order to ensure that the entire Canadian segment (500 miles of pre-build and 1500 miles of the remainder) could be financed and completed.

The U.S. government assured Canada that the entire project would be built and that the U.S. would permit the Canadian sponsors to charge for its segment when completed in exchange for the commitment by Canada to pre-build part of the system and deliver additional quantities of Canadian natural gas to the U.S. On July 18, 1980, President Carter sent a letter to Prime Minister Trudeau which said that the U.S. government remains committed to the project, that the U.S. government is satisfied the ANGTS will be completed, and that the administration would initiate action before the U.S. Congress to seek changes to laws that prohibit tariff payments from U.S. consumers to the Canadian sponsor upon completion of the Canadian segment of the ANGTS, but prior to the completion of the entire system. (*See* Appendix B).

e. Financing Considerations

A workable financing plan will require reducing the potential risks borne by the lenders to the maximum extent possible, given the magnitude of the capital required which, in turn, requires the greatest level of lender participation possible in terms of the number of lenders participating and the amount of debt provided by each lender. To attract such extensive participation mandates segmentation of the total system for purposes of billing commencement. For example, commercial banks and institutional lenders have legal and internal lending limits for any customer.

Additionally, lenders generally desire a varied portfolio to spread their risks among a variety of projects. The ANGTS sponsors are asking these lenders to commit an unusually large amount of capital to a single undertaking. If the debt repayment is structured as though the ANGTS was three separate projects for debt repayment purposes, this should reduce the lenders' perception of risks to a level which may facilitate development of a private financing plan.

Finally, the recent volatile nature of both inflation and interest rates has changed drastically the approach taken by lenders in assessing the amount of loans that can be made to any project and the repayment schedules. Institutional lenders are now less willing to make long-term commitments than they were a few years ago given the present day market conditions.

f. Conclusion

The proposed waiver on billing commencement honors our commitment to Canada. Were it not for this commitment, Canada would not have proceeded with construction of the pre-build. Moreover, the consumer risk associated with this proposed waiver is minimal because it is so widely dispersed and because non-completion or delay in the simultaneous completion of the entire ANGTS is unlikely. The risk to be assumed by gas customers will be spread over literally millions of households and commercial and industrial establishments. Finally, consumers have more to lose if the ANGTS is not built. Over the next 25-30 years, U.S. consumers will pay more for their energy requirements if they have to use imported oil instead of Alaskan gas. The ANGTS will provide a reliable supply of energy to the lower 48 states which will not be subject to OPEC price increases or embargo.

B. Natural Gas Act

1. Evidentiary Hearing Requirements

The President proposes that Section 7(c)(1)(B) of the Natural Gas Act, Pub. L. No. 75-688, be waived to the extent it mandates the use of formal evidentiary hearings on ANGTS and related applications.

If Alaskan gas deliveries are to commence in late 1986, the process of obtaining a final certificate pursuant to Section 7 of the Natural Gas Act must not be unduly delayed.

This proposed waiver would remove any mandatory requirement that the FERC conduct any further formal evidentiary hearings on the ANGTS. However, the FERC would retain the discretion to order a formal evidentiary hearing if and when necessary.

No project in the Commission's history has been more closely scrutinized than the ANGTS. Three years of hearings were held before the Federal Power Commission prior to the President's 1977 Decision. One and one half years were spent in hearings, both in Canada and the U.S., before the final "prebuild" authorizations were issued. The rulemaking process that led to the development of the Incentive Rate of Return mechanism and the approval of the Alaskan Northwest tariff consumed two years. The FERC, the Office of the Federal Inspector, and their consultants have spent over one year reviewing the Alaskan pipeline cost estimate. In addition to this extensive regulatory review, the project received close scrutiny by a diverse group of Federal agencies and the Congress pursuant to the Alaska Natural Gas Transportation Act of 1976. Every aspect of the project has been extensively examined.

Alaskan Northwest believes that the intense governmental review to date, the proven ability of the Commission to process effectively ANGTS matters through informal rulemaking procedures (notice and comment), and the inordinate delay that formal hearings would generate, suppport the grant of this waiver.

Approval of the proposed waiver would not relieve the FERC of its statutory responsibility under the Natural Gas Act to find that construction and operation of the remaining portions of the ANGTS would serve the public interest and is in the public convenience and necessity.

2. Regulatory Certainty

The President proposes that Sections 4, 5, 7, and 16 of the Natural Gas Act be waived to the extent that the FERC could otherwise change any rule or order to impair (i) recovery of actual operation or maintenance expenses, current taxes, and amounts necessary to service debt, including interest and scheduled retirement of debt, for the approved transportation system; or (ii) the recovery by purchasers of Alaskan gas of all costs related to the transportation of such gas pursuant to an approved tariff.

Sections 4, 5, 7, and 16 of the Natural Gas Act are the statutory authorities by which the Commission can suspend, investigate, establish, or modify the rates charged by Alaskan Northwest or the costs flowed through by the shippers to their customers.

The terms of Alaskan Northwest's cost recovery and that of the shippers will be finalized when the FERC issues its final certificates. Sections 4, 5, 7 and 16 of the Natural Gas Act could permit the Commission subsequently to modify the terms of the certificate in a manner which could impair the ability of Alaskan Northwest and/or the shippers to meet their financial obligations.

This proposed waiver would ensure the ability of the sponsors to maintain debt service and the shippers to pass-through their costs by limiting the authority of the FERC to change project and shipper tariffs after initial FERC approval in a manner that would impair the maintenance of debt service or preclude the recovery by shippers of any costs associated with the transportation of Alaskan gas. This does not mean that actual expenses would no longer be subject to continuing FERC review for prudency. Rather it only assures that there will be no impairment of debt service.

The cost recovery mechanisms for Alaskan Northwest and the shippers are the tariffs approved by the FERC and the Canadian National Energy Board pursuant to which the transportation companies charge the shippers for transportation service and the shippers, in turn, charge their customers for all ANGTS costs, including charges under the Foothills and lower 48 sponsor tariffs. As the Commission found in its Orders 31 and 31-B these tariffs are the "economic lifeline of the project." Because of the extraordinary risks attendant to the project and the enormous amount of financing needed, lenders will require satisfaction that, once approved by the FERC, the tariffs will not be subject to future regulatory action which would impair the recovery of debt. This could occur if the FERC was to limit the payments to Alaskan Northwest by the shippers or to limit the passthrough of shipper costs associated with the project to their respective customers.

The FERC has attempted to provide as much regulatory certainty as possible by approving a tariff that, in the event of a service interruption, would in all events assure a stream of revenues sufficient to service debt and pay operation and maintenance expenses and taxes. However, the FERC recognizes that it could be legally possible for a future Commission to modify this tariff. In a letter dated August 18, 1981 to the Honorable Philip R. Sharp, Chairman of the Subcommittee on Fossil and Synthetic Fuels, Committee on Energy and Commerce, U.S. House of Representatives, and the Honorable Clarence J. Brown, Ranking Minority member, Subcommittee on Fossil and Synthetic Fuels, Committee on Energy and Commerce U.S. House of Representatives, the General Counsel of the FERC has written that both he and the FERC Chairman agree with the assessment that potential lenders to the ANGTS need greater assurances on the matter of regulatory certainty than they have been supplied to date and that, under present law, this assurance cannot be provided by the FERC.

This proposed waiver is limited in scope in order to preserve a balance between the assurance of pipeline revenue recovery vital to lenders and the statutory obligation of the FERC to assure just and reasonable rates. This waiver would only prevent changes to the tariffs which would impair debt service for the ANGTS or preclude the recovery by shippers of costs associated with the transportation of Alaskan gas. Nothing in this waiver alters the nature and extent of the FERC responsibilities under the Natural Gas Act in reviewing the tariffs, as part of its certification process, to ensure that such tariffs are "just and reasonable" and in the public interest.

3. Status of Alaskan Northwest

The President has proposed a waiver of Sections 1(b) and 2(b) of the Natural Gas Act, Pub. L. No. 75-688, to the extent necessary to permit Alaskan Northwest and ANGTS shippers to be deemed natural gas companies within the meaning of the Act upon their acceptance of FERC certificates.

Section 1(b) of the Natural Gas Act states that "[t]he provisions of this act shall apply to the transportation of natural gas in interstate commerce . . . and to natural-gas companies engaged in such transportation . . . ." This section delineates the scope of activities which are subject to regulation under the Natural Gas Act. Section 2(6) defines a "natural gas company" as "a person engaged in the transportation of natural gas in interstate commerce . . . ."

Since neither Alaskan Northwest nor the shippers will physically transport Alaskan gas until completion and actual operation of the ANGTS, they may not be considered a "natural gas company" within the meaning of the Natural Gas Act, and therefore -- absent the waiver of these provisions of the Natural Gas Act --

would not qualify to collect charges under their FERC approved tariffs until gas actually begins to flow through the Alaskan Segment. To permit Alaskan Northwest to charge the minimum bill when the Alaskan pipeline segment or the conditioning facility is completed and commissioned, Sections 1(b) and 2(6) must be waived to the extent that they interpose a legal basis for any conclusion other than that Alaskan Northwest and the shippers will be natural gas companies upon acceptance of final certificates.

4. Export and Import Authorization

The President proposes to waive Section 3 of the Natural Gas Act, Pub. L. No. 75-688, to the extent any further authorization would be required for the export of Alaskan gas into Canada and the import of such gas into the lower 48 states.

Section 3 of the Natural Gas Act requires government approval prior to the import or export of natural gas to or from the U.S.

This waiver would permit the export and import of Alaskan gas without obtaining approval pursuant to Section 3 of the Natural Gas Act. Inasmuch as the President has already approved the export of Alaskan gas to Canada and the import of Alaskan and Canadian gas to the U.S. associated with the project, further governmental approvals should not be required.

C. Energy Policy and Conservation Act

The President proposes that Section 103 of the Energy Policy and Conservation Act, Pub. L. No. 94-163, be waived to the extent it would require further authorization for the export of Alaska gas into Canada and the import of such gas into the lower 48 states. Section 103 of the Energy Policy and Conservation Act requires government approval prior to the export of natural gas from the U.S.

This waiver would permit the import and export of Alaskan gas without obtaining approval pursuant to Section 103 of EPCA. Inasmuch as the President has already approved the export of Alaskan gas to Canada and the import of Alaskan and Canadian gas to the U.S. associated with the project, further governmental approvals are not necessary.

Conclusion

The ANGTS sponsors have worked diligently and ceaselessly over the last seven years to provide a transportation system to bring much needed natural gas from Alaska to the lower 48 states. The ANGTS can be built in a timely and cost-effective manner. The need for this vital transportation link is without question and its benefits are substantial. But time is critical.

Since Congressional approval of the President's Decision in 1977, the ANGTS sponsors both in Canada and the U.S. have spent approximately three-fourths of $1 billion - all of which is at risk - in the design and engineering of the ANGTS. Large additional capital expenditures and commitments must be made in the coming months to purchase the necessary supplies, materials, and equipment to keep the project on schedule. The

Alaskan Northwest partnership cannot justify risking additional substantial sums of money to keep the project on schedule absent the unqualified support of Congress expressed through the approval of the waiver transmitted by the President.

Additionally, the capital markets are not limitless. Project delay results in increased capital costs. The projected total completed cost of the ANGTS is approaching the capacity of the worldwide capital markets successfully to fund the project. If Congress does not act on the waiver this session, the capital costs of the project will escalate even further and our ability to secure adequate funds to complete the ANGTS will be severely jeopardized. Thus, the next step lies before you and the decisions that you make in the next several weeks will determine whether the project sponsors both in the U.S. and Canada can move forward to develop a private financing plan and complete this critically needed project.

THE END

APPENDIX A

PUBLIC LAW 95-158 [H.J.RES. 621]; NOV. 8, 1977

ALASKA NATURAL GAS TRANSPORTATION SYSTEM—APPROVAL

For Legislative History of Act, see p. 3313

Joint Resolution approving the Presidential decision on an Alaska natural gas transportation system, and for other purposes.

Alaska natural gas transportation system. Presidential decision. Congressional approval. 15 USC 719f note. 42 USC 4321 note.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the House of Representatives and Senate approve the Presidential decision on an Alaska natural gas transportation system submitted to the Congress on September 22, 1977, and find that any environmental impact statements prepared relative to such system and submitted with the President's decision are in compliance with the Natural Environmental Policy Act of 1969.

Approved November 8, 1977.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 95-739, pt. I (Comm. on Interior and Insular Affairs) and No. 95-739, pt. II (Comm. on Interstate and Foreign Commerce).
SENATE REPORT No. 95-567 accompanying S.J. Res. 82 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 123 (1977):
Nov. 2, considered and passed House and Senate, in lieu of S.J. Res. 82.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 13, No. 46:
Nov. 8, Presidential statement.

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APPENDIX B

EMBARGOED UNTIL AFTER THE BRIEFING JULY 18, 1980

Office of the White House Press Secretary

THE WHITE HOUSE

TEXT OF A LETTER FROM THE
PRESIDENT TO THE
PRIME MINISTER OF CANADA

July 18, 1980

Dear Mr. Prime Minister:

Since you last wrote to me in March, the United States Government has taken a number of major steps to ensure that the Alaska Natural Gas Transportation System is completed expeditiously.

Most significantly, the Department of Energy has acted to expedite the Alaskan project. The North Slope Producers and Alaskan segment Sponsors have signed a joint statement of intention on financing and a cooperative agreement to manage and fund continued design and engineering of the pipeline and conditioning plant. The Federal Energy Regulatory Commission recently has certified the Eastern and Western legs of the System.

The United States also stands ready to take appropriate additional steps necessary for completion of the ANGTS. For example, I recognize the reasonable concern of Canadian project sponsors that they be assured recovery of their investment in a timely manner if, once project construction is commenced, they proceed in good faith with completion of the Canadian portions of the project and the Alaskan segment is delayed. In this respect, they have asked that they be given confidence that they will be able to recover their cost from U.S. shippers once Canadian regulatory certification that the entire pipeline in Canada is prepared to commence service is secured. I accept the view of your government that such assurances are materially important to insure the financing of the Canadian portion of the system.

Existing U.S. law and regulatory practices may cast doubt on this matter. For this reason, and because I remain steadfastly of the view that the expeditious construction of the project remains in the mutual interests of both our countries, I would be prepared at the appropriate time to initiate action before the U.S. Congress to remove any impediment as may exist under present law to providing that desired confidence for the Canadian portion of the line.

Our government also appreciates the timely way in which you and Canada have taken steps to advance your side of this vital energy project. In view of this progress, I can assure you that the U.S. government not only remains committed to the project; I am able to state with confidence that the U.S. government now is satisfied that the entire Alaska Natural Gas Transportation System will be completed. The United States' energy requirements and the current unacceptable level of dependence on oil imports require that the project be completed without delay. Accordingly, I will take appropriate action directed at meeting the objective of completing the project

more

(OVER)

by the end of 1985. I trust these recent actions on our part provide your government with the assurances you need from us to enable you to complete the procedures in Canada that are required before commencement of construction on the prebuild sections of the pipeline.

In this time of growing uncertainty over energy supplies, the U.S. must tap its substantial Alaska gas reserves as soon as possible. The 26 trillion cubic feet of natural gas in Prudhoe Bay represent more than ten percent of the United States total proven reserves of natural gas. Our governments agreed in 1977 that the Alaska Natural Gas Transportation System was the most environmentally sound and mutually beneficial means for moving this resource to market. Access to gas from the Arctic regions of both countries is even more critical today as a means of reducing our dependence on imported petroleum.

Successful completion of this project will underscore once again the special character of cooperation on a broad range of issues that highlights the U.S./Canadian relationship.

I look forward to continuing to work with you to make this vital energy system a reality.

Sincerely,

JIMMY CARTER

# # # # #

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BEST AVAILABLE COPY

APPENDIX C

96TH CONGRESS
2D SESSION

S. CON. RES. 104

CONCURRENT RESOLUTION

Whereas, the Alaska Natural Gas Transportation System is a critically important energy project that will tap Alaska's North Slope natural gas reserves which constitute more than 10 percent of this Nation's entire proven natural gas reserves;

Whereas, the System, when complete will supply the United States with 5 percent of its annual natural gas demand, displacing over four hundred thousand barrels of oil, thereby greatly reducing this Nation's excessive dependence on foreign oil;

Whereas, the Congress has already expressed its overwhelming support for the System in approving by joint resolution the President's 1977 Decision on the Alaska Natural Gas Transportation System;

Whereas, a portion of the System known as prebuild can be constructed by the end of 1981 to bring Canadian gas to this Nation until the entire system is complete in 1985;

Whereas, prebuild will contribute to completion of the entire System by spreading demand for capital, labor and materials over several years, and will enable this Nation to obtain Canadian natural gas to displace two hundred thousand barrels of foreign oil a day;

Whereas, the Federal Energy Regulatory Commission has issued decisions granting certificates for the prebuild facilities in the United States;

Whereas, the sponsors of the Alaskan segment of the System and the North Slope natural gas producers have entered into an agreement to fund and manage jointly the design, engineering and cost estimation for the Alaskan segment and have made a joint Statement of Intention to work to develop a financing plan for the Alaskan segment with the object of completing construction by the end of 1985: Now, therefore, be it

Resolved by the Senate (the House of Representatives concurring), That it is the sense of the Congress that the System remains an essential part of securing this Nation's energy future and, as such, enjoys the highest level of congressional support for its expeditious construction and completion by the end of 1985.

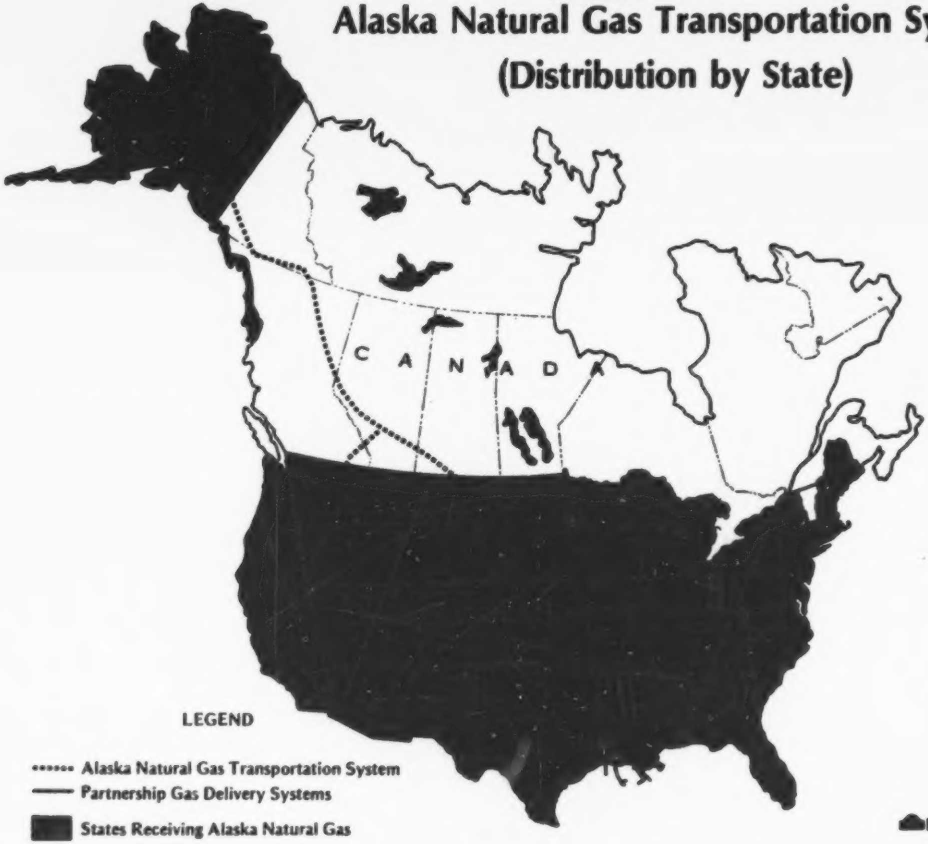
Passed the Senate June 27 (legislative day, June 12), 1980.

Attest:

Secretary.

APPENDIX D

Alaska Natural Gas Transportation System
(Distribution by State)


C A N A D A
LEGEND
•••••• Alaska Natural Gas Transportation System
—— Partnership Gas Delivery Systems
■ States Receiving Alaska Natural Gas

Northwest Alaskan
PIPELINE COMPANY

APPENDIX E

THE DEMAND FOR ALASKAN NATURAL GAS

JULY 1981

A Report to:

NORTHWEST ALASKAN PIPELINE COMPANY

Prepared by:

JENSEN ASSOCIATES, INC.
Boston Washington Geneva

84 State Street
Boston, Massachusetts 02109
Telephone: (617) 227-8115
Telex: 94-0057

EXECUTIVE SUMMARY

Introduction

In September 1979, Jensen Associates, Inc. completed a study of "The Market Outlook for Alaskan Natural Gas" for Northwest Alaskan Pipeline Company. We have been asked by Northwest Alaska to review the marketability of Alaskan natural gas in greater detail and to update our conclusions in the light of events which have transpired since the first report. This study--like the previous one--was commissioned to review the purely commercial outlook for Alaskan gas, rather than to deal with the many aspects of national energy policy which necessarily influenced the decision to proceed with the pipeline. In focusing on the commercial marketability, the emphasis has been upon the likely gas market environment during the construction and early operation of the pipeline. Thus, its time frame is the decade of the 1980s.

Summary and Conclusions

The market environment for natural gas in the United States continues to undergo profound changes as demand, supply, price and the prospects for competitive energy sources all respond to the upheavals in energy markets which were set in motion throughout the world during the 1970s. By 1987, when Alaskan gas will be available, we expect that the decline of conventional Lower 48 (L48) gas supplies will have created a strong demand for supplementary gas volumes, if gas is not to lose market share to imported oil. In an environment of rising real prices for oil--which we believe is the most likely expectation for long-term price trends--the price structure for Alaskan gas will look increasingly favorable compared both to oil and to those alternative gas supplies whose prices escalate with oil.

We believe that Alaskan gas is marketable, not only under the rising long-term price increase scenario--which we term our "least unlikely" forecast--but also under a more conservative price projection which we have utilized in this study to test market response.

The underlying driving force which will be most influential in creating increased demand for gas in general, and a market for Alaskan supplies in particular, is an increase in real prices for world oil. A major portion of existing U.S. industrial and power generation plant capacity is designed for oil and/or gas firing and is not readily convertible to coal or other fuels. Thus, rising oil prices quickly shift demand to gas. In addition, prices of most supplementary gas supplies--such as Canadian, Mexican or LNG--are being linked to oil. Rising real prices for oil thus make Alaskan gas--without such linkage--increasingly attractive relative to alternate supplies.

Our "least unlikely" crude price forecast calls for a 60 percent increase in real crude oil prices between early 1981 and 1987 when the

Alaskan gas is scheduled to flow. Under such an oil price scenario, Alaskan gas--priced in the middle of its expected range--would be cheaper than oil-indexed imports from Canada, Mexico and Algeria by 1989.

Early 1981 has seen a marked shift in the outlook for world oil supplies and prices. The successful weathering by world oil markets of the Iraq-Iran crisis, together with unexpectedly high reductions in world oil --and OPEC oil--demand has forced many oil economists to moderate their projections. Most forecasters have lowered their near-term oil price estimates and some have substantially lowered their long-term estimates as well. We at Jensen Associates have also reduced our price expectations for the near-term and adjusted our longer-term "lower-bound" price scenario. But we are not convinced that the conditions necessary for the lower-bound forecast--continuing overhang of surplus oil supply within OPEC, and an absence of disruptive military or political events in the Middle East--will persist throughout the 1980s. We thus continue to regard the lower-bound case as less probable. We view a continuation of the world oil pricing patterns which prevailed during the 1970s as more probable. These call for at least one disruptive event and subsequent price increase between now and the time the Alaskan gas flows.

Roughly two-thirds of the time since early 1973, world oil supply has been in balance or in surplus, with a tendency toward stable or declining real oil prices. Yet, 80 percent of the oil price increase during the period occurred during those times when events in the Middle East upset world oil balances. The majority of the time there may have been--as there may be now--a natural tendency to ignore the dominant "crisis" element in world oil price formation.

Our least unlikely price projection, together with our less probable lower-bound case, are shown in Table 1. The least unlikely forecast is, of necessity, illustrative since one cannot predict the timing of disruptive events; for purposes of this forecast, we have arbitrarily projected a disruption in 1984, with price formation before and after the event forecast by analogy to the 1973/1974 and 1979/1980 disruptions. Our less probable lower-bound case has weakening real prices until the end of 1982, followed by the operation of the OPEC long-range strategy formula thereafter.

Much of our marketability analysis has been focused on the interaction of upper-bound Alaskan gas price estimates with lower-bound world oil price projections, in order to test the market under the least favorable combination of circumstances. World oil prices have already risen substantially since the passage of the Natural Gas Policy Act (NGPA) in November 1978 and crude oil price deregulation in January 1981 placed further upward price pressures on competitive oil prices.

While oil prices have risen, gas pricing, under the terms of the Natural Gas Policy Act of 1978, is to be controlled until new gas deregulation in 1985, thus creating strong pressures to drive dual-fueled demand to gas and create incentives for new customer growth and gas conversions. Thus, we see a growing demand for gas, despite major conservation-induced energy savings.

We do not see as easy an expansion of gas supply. Lower 48 production should continue to decline despite accelerated drilling activity. The addition of supplementary sources will be required to attempt to maintain supply levels. The supplements to maintain supply levels are apt to be costly, as increasingly, prices for gas imports from Canada, Mexico and LNG projects will be indexed to rising world oil prices.

The outlook for demand until 1985 is likely to be for a return of some of the excess demand conditions which first faced the gas industry from 1971-1977. New gas deregulation in 1985 will cause some price correction, and some loss of load, but a market will still remain for rolled-in Alaskan gas when it comes on line in 1987. Our estimates of gas demand together with supply (in the most severe, lower-bound oil price case) is shown in Table 2.

In the Natural Gas Policy Act, Congress granted Alaskan gas the right to rolled-in treatment for ratemaking purposes. This was designed to permit price-controlled old gas (which will continue long after 1985 new gas deregulation) to cross-subsidize any portion of the price of Alaskan gas over and above market clearing price levels. In a high oil price scenario, Alaskan gas quickly becomes competitive on the margin, as real oil prices overtake the initially higher-priced Alaskan gas. In our least unlikely combination of oil and gas prices, Alaskan gas requires little roll-in treatment during the early years to be marketable.

However, with projected Alaskan gas prices at the upper bound, and oil price expectations at the lower bound, Alaskan gas must rely--in the early years, at least--on the rolled-in treatment which Congress granted it in the NGPA. Assuming this relatively unfavorable combination of higher-bound Alaskan gas prices and lower-bound oil prices, we estimate that the 1987 market will have 25 percent of total U.S. gas supply still regulated below market clearing levels, amounting to a roll-in capacity of $11.7 billion. This is illustrated in Figure I. Other supplementary gas supplies, priced above clearing levels, will utilize a portion of this capacity, but most of it remains to accommodate the Alaskan gas and to provide a potential for "flyup"--the rapid market and contractual escalation of deregulated new gas prices in 1985.

It is possible that the gas pipeline industry, through its contracting practices between now and 1985, can lock in enough deregulated gas price escalation to absorb the roll-in capacity in this lower-bound case and make it difficult to accommodate the Alaskan gas. We sense a growing awareness of this problem in the industry with greater emphasis on supply planning and on market protection contract clauses. We therefore believe the problem is manageable if dealt with in time.

In summary, we believe that a commercial market for Alaskan gas will exist in 1987. In our least unlikely world oil price scenario, Alaskan gas will increasingly be competitive with alternate gas supplies, which will be largely linked to oil. A combination of upper-bound Alaskan gas prices and lower-bound oil prices will require reliance on roll-in capacity, but enough capacity should exist to accommodate it.

TABLE 1

FORECASTS OF REFINERS' ACQUISITION COST OF CRUDE OIL

(1980 $/barrel)

	1981	1985	1987	1990
Least Unlikely Case[a]	$35.21	$59.30	$57.60	$66.42
Lower-Bound Case	$35.21	$36.19	$38.43	$42.01

[a] Assumes a disruption in 1984 with a sharp price increase followed by a period of market weakness.

Source: Jensen Associates, Inc.

TABLE 2

SUPPLY AND DEMAND FOR U.S. NATURAL GAS

1980 - 1990

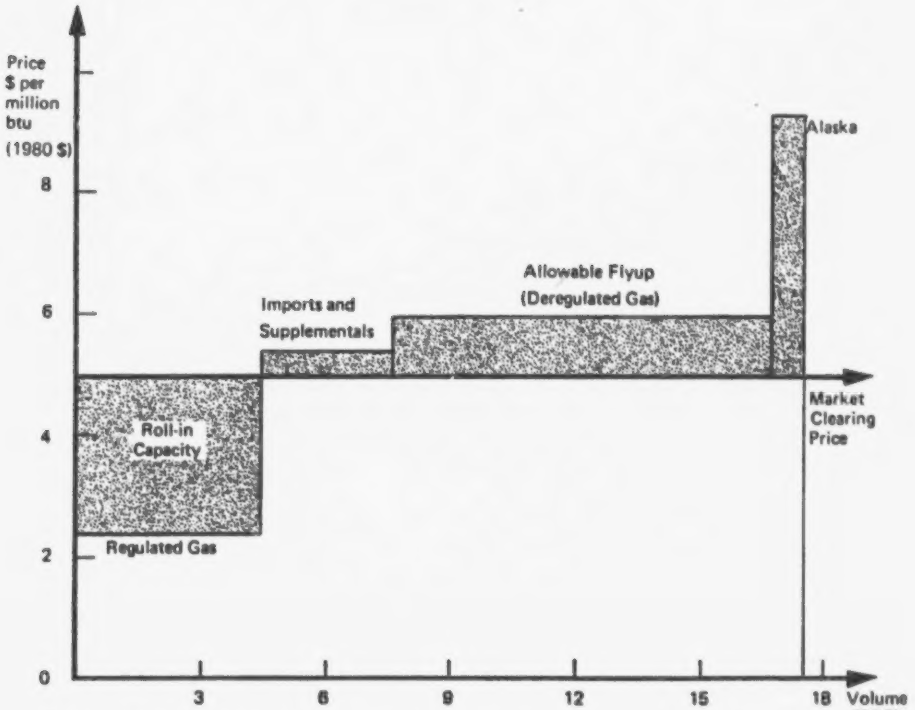
(Trillion cubic feet)

	Estimated	Forecast	
	1980	1985	1990[a]
Total Demand	20.5	22.5	18.4
Total Expected Supply (Excluding Alaska)	20.5	18.8	17.7
Shortfall			
Without Alaska	--	3.8	0.7
With Alaska	--	3.8	0

[a] The 1990 demand forecast is based on a cleared market for natural gas.

Source: Jensen Associates, Inc.
U.S. Department of Energy

FIGURE 1
1987 ROLL-IN CAPACITY OF U.S. NATURAL GAS MARKETS
(Based on Lower Bound Crude Price
and
Upper Bound Alaskan Price)



Source: Jensen Associates, Inc.

I. THE MARKET ENVIRONMENT FOR ALASKAN NATURAL GAS

Energy markets have been changing rapidly during 1981. The natural gas shortages of 1976/1977 have been replaced by a persistent "gas bubble;" the chaotic 1979 world oil markets which followed the Iranian Revolution have been supplanted by an "oil glut" with visible evidence of strain within OPEC. Energy price signals now often point downward, rather than consistently upwards as they have in the recent past. It is tempting to believe--as the popular and business press frequently observe--that world energy problems are on their way to solution and that complex and expensive energy supply options from nuclear power, to synfuels, to LNG, or to Alaskan gas may no longer be commercially justified.

We disagree with this hypothesis. The energy markets of 1987, when the Alaskan gas will be available to the Lower 48, are likely to be far different from the energy markets of 1981. The improvements in natural gas and oil balances have come predominantly from the demand side, partly through demonstrated levels of conservation which are much larger than most forecasters would have anticipated, but also through general weakness in economic activity both in the U.S. and the rest of the OECD. Improvements in energy supply for the most part have been disappointing, certainly, relative to expectations for supply five to ten years ago.

To the extent that portions of the U.S. natural gas and world oil surpluses are recession-induced, any pickup in economic activity threatens to restore some of the tighter energy market conditions which previously prevailed. This, in our view, is a much more likely expectation than a persistence of gas and oil surpluses through the latter part of the decade.

There are three critical elements determining the marketability of Alaskan natural gas. They are:

- the evolution of natural gas demand in the U.S. within the context of total U.S. energy market balances;
- the expectation for alternative gas supplies, both from traditional Lower 48 sources, as well as from imports and the gas supplements;
- and--since on the margin most gas competes with oil--the outlook for world oil price levels.

Our analysis suggests that gas demand will rise between now and 1985, as gas prices remain price-regulated under the NGPA and oil prices are deregulated. New gas deregulation after 1985, however, will diminish the comparative price advantage of gas. As a consequence, the price-sensitive demand for gas will shift to other fuels, thereby eliminating the excess demand for gas.

The outlook for gas supply, in our view, is for a continuing decline in Lower 48 production, with a resulting need for supplementary gas supplies to meet demand.

Rising real oil price levels have two interrelated effects. They increase the relative demand for gas compared to higher-priced oil; and they render most other supplementary supplies--which are for the most part price-indexed to oil--increasingly costly relative to Alaskan gas. Higher oil prices--as in our least unlikely oil price case--quickly make Alaskan gas competitive in its own right. In a more conservative lower-bound oil price projection, this competitive crossover point is delayed and Alaskan gas must resort in the early years to the roll-in treatment which Congress granted it in the NGPA.

The Evolution of Oil and Gas Markets during the Seventies

The commercial market for natural gas during the 1970s has been extremely complex. Projections and estimates made by normally knowledgeable observers have been frequently overtaken by events in a matter of months. We believe that the turmoil in natural gas markets is more likely to increase than to decrease during the 1980s, as the supply and price of both oil and gas are heavily affected by regulatory and political pressures, as well as the operation of the usual market forces.

Jensen Associates identifies four major gas market environments during the seventies which we call the "growth," "shortage," "gas bubble," and "bubble distribution" periods. Figure I-1 depicts the chronological evolution of these markets over the last decade.

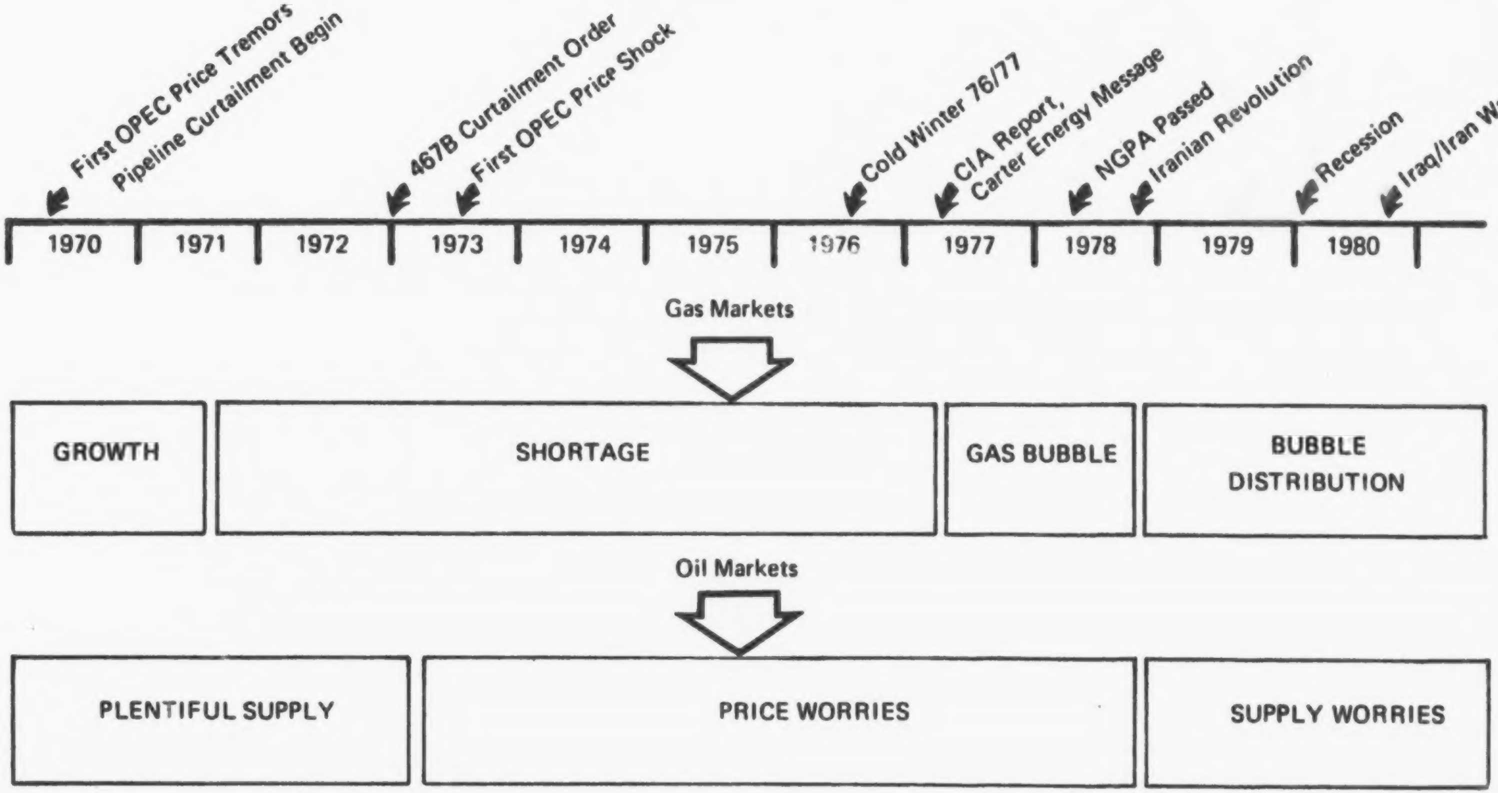
From the end of World War II to 1971, natural gas was the fastest growing energy source in the United States. When the 1954 Phillips decision of the U.S. Supreme Court placed interstate gas wellhead prices under Federal Power Commission control, gas prices were no longer influenced by changes in unregulated coal and oil prices. As a result, gas--in a period when supply was not perceived as limiting--carved out substantial increases in market share at the expense of competitive fuels. By 1971, the major interstate natural gas pipelines were no longer able to satisfy the growing demand for natural gas and an era of interstate natural gas pipeline curtailments began.

The growth period for natural gas, which effectively ended with the first interstate pipeline curtailments in 1971, was a period when relatively little concern was expressed about the availability or pricing of oil. Indeed, there was often little recognition of the fact that most oil on the margin had to be imported.

The natural gas shortage period, from 1971-1977, was an era when regulation sought to restrain the demand for natural gas to its clearly limited supply. This was accomplished by moratoriums on the attachment of new

FIGURE I-1

THE EVOLUTION OF GAS/OIL MARKETS


First OPEC Price Tremors
Pipeline Curtailment Begin
467B Curtailment Order
First OPEC Price Shock
Cold Winter 76/77
CIA Report,
Carter Energy Message
NGPA Passed
Iranian Revolution
Recession
Iraq/Iran War
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
Gas Markets
GROWTH
SHORTAGE
GAS BUBBLE
BUBBLE
DISTRIBUTION
Oil Markets
PLENTIFUL SUPPLY
PRICE WORRIES
SUPPLY WORRIES

customers and by end-use curtailment mechanisms, which allocated shortages primarily among large industrial and power generation customers.

Perceptions about international oil supply and price changed substantially during this period. The Arab oil embargo of 1973/1974 led to a quadrupling of international oil prices by OPEC and public attention tended to focus on price rather than supply. It was common to characterize OPEC as a cartel which would ultimately break up and bring prices back down to "reasonable levels." A little recognized by-product of the natural gas curtailment priority system was that most of the curtailed gas demand in fact switched to oil. Our figures suggest that between 1972, the peak year of gas deliveries, and the passage of the NGPA in 1978, 76 percent of the fuel switching from gas was to oil, which on the margin had to be imported.

During the gas shortage period, the large overhang of excess gas demand at prices well below oil led gas suppliers to try to make up the shortages with alternative supplies, almost without regard to price. The fact that any new supply--such as comparatively high-priced SNG made from oil feedstocks--could be averaged with price-controlled supplies and still keep prices to the customer below market clearing levels, led to the phenomenon of rolled-in pricing, where high-cost gas could be averaged with price-controlled gas without loss of market share.

The logic surrounding the Natural Gas Policy Act of 1978 was born out of the shortage period. The winter of 1976/1977 had been abnormally cold, particularly in the upper Midwest. For a time it appeared that the worst gas shortage fears had finally materialized, with a cut-off of gas to industry and schools resulting from a seeming breakdown of supply. In retrospect, the winter of 1976/1977 appears to have been more a severe winter peak-demand problem that the system was no longer able to handle, than the chronic annual shortage which was increasingly anticipated during the shortage period. To enhance domestic supply, the NGPA liberalized price controls on many categories of gas, pointing towards deregulation of new gas by 1985. It did attempt to eliminate the dual market between intrastate and interstate gas by applying price controls to new intrastate gas for the first time and making the movement of gas from intrastate to interstate markets more flexible. The Act also introduced incremental pricing, which was in part designed to prevent undisciplined price behavior--through roll-in--in a tight market by threatening loss of industrial load. However, because of the desirability of Alaskan natural gas, that source was given a special exemption from incremental pricing, allowing it to be rolled-in.

By the time the Natural Gas Policy Act became law in November 1978, natural gas markets were already nearing balance, and talk of the "gas bubble" became common. In retrospect, it appears that conservation, principally by industrial users but also by residential and commercial customers, was much greater than most observers had anticipated. One of the major contributions to the bubble was the very substantial conservation which occurred in the intrastate market. Although gas production levels went down, demand levels dropped even further, creating a surplus from the demand side which was potentially available for the interstate market.

Our analyses suggest that at the time of the passage of the NGPA, no more than 1 trillion cubic feet (tcf) of the 2.3 tcf drop in industrial demand had switched out of natural gas into alternate fuels over the 1972-1978 period. Conservation accounted for the remainder of the net demand effect. Furthermore, in late 1978, a surplus of comparable size existed in the intrastate gas market as conservation had reduced demand below available supply and producers were reluctant to commit the surpluses to regulated interstate pipelines.

Our analysis suggests that in late 1978, the market was near balance and might well have cleared quickly had the NGPA simply provided for flexibility in moving gas from intrastate to interstate markets without all of the NGPA's complex pricing features. The simultaneous occurrence of the Iranian revolution and subsequent increase in world oil prices, however, has recreated a situation in which regulated gas prices fail to track competitive oil market prices.

The easing of the gas shortage and the emergence of the gas bubble coincided with growing concern about international oil. Oil concerns from 1973-1977 were largely about prices based on the view of OPEC as a price-fixing cartel which should be "broken up." President Carter's energy message in April 1977 publicly raised the possibility of oil shortages as well. It called upon an analysis by the Central Intelligence Agency which argued that deteriorating Russian oil supplies would put the Russians into competition for Middle East oil by the early to mid 1980s and create the possibility of physical shortages. Thus, attention shifted over the period of 1973-1977 from cartel-oriented price worries to genuine concern about physical supply. Ironically enough, by the time the NGPA was passed, its implied concern about excess gas demand and the threatened use of oil competition to discipline gas prices had largely been replaced by concern over the management of oil imports.

Among the measures which the Department of Energy (DOE) initiated to deal with oil shortages was the Order 30 program. This was designed to put surpluses of natural gas--the gas bubble--under interstate boilers to back out imported oil. Thus, where oil had been used as an agent to control excess gas demand during the gas shortage period, the gas bubble was being used as a device to control oil imports.

During 1979, while the international oil spot market was rising rapidly and the official OPEC prices rose two-and-one-half fold, we at Jensen Associates believed that the U.S. was entering a fourth market period we called "oil crunch." We anticipated that the rapidly emerging disparity between oil and regulated gas prices would cause a surge of conversions to natural gas, absorb the bubble, and recreate the conditions for shortage. In our forecast of natural gas markets for Northwest Alaska in 1979, we described this "crunch" phenomenon as creating a substantial, strong future outlook for gas demand, although the hard statistical information to demonstrate that it was occurring was not yet available.

From the vantage point of December 1980, it now appears that the gas surplus has remained with us and the "crunch" phenomenon anticipated by Jensen Associates in mid 1979 has not occurred as previously expected. A recap of the developments in the market from 1978-1980 suggests that the onset of the recession had a significant effect in holding demand below capacity levels. While the recession, as measured by changes in the Gross National Product, was slow to make its appearance during 1979, many energy-intensive industries such as cement, steel, and refining were selectively hit early. This caused a reduction in total industrial energy demand below what might have been expected on the basis of economic conditions alone. Thus, we have changed our designation of the period from 1978-1980 from "oil crunch" to "bubble distribution."

Examination of the figures for the period from 1978-1980 suggests that, indeed, a major shift in the bubble from the intrastate to the interstate market took place. Since intrastate markets were limiting production levels prior to the NGPA, gas which would normally have been produced for intrastate customers was cut back. The passage of the NGPA permitted this gas, which previously would have gone intrastate, to flow to interstate markets giving the appearance of a supply improvement. This production increase was due less to basic supply improvement than it was to the increased flexibility to move gas outside the producing state. We estimate that between 1978 and 1980, total gas demand actually supplied (on a weather normalized basis) increased by slightly over 1.5 tcf. Approximately a quarter of the increase occurred in residential, commercial and high-value industrial markets. More than half of this high-value gas demand increase occurred in the Northeast where the contrast between the prices of traditional oil fuels and price-controlled natural gas was the most dramatic. This increase, we believe, was truly a "crunch" effect. However, three-quarters of the increase in demand occurred in boiler fuel and power generation uses--principally in interstate markets--where curtailment-induced fuel switching was concentrated. This was the "bubble distribution" effect made possible by the more flexible intrastate/interstate gas transfer arrangements contained in the NGPA.

The Likely Natural Gas Market Environment during the Eighties

During the 1970s, the development of new natural gas market environments, which resulted from changing patterns of supply, demand, and pricing for oil and gas were sometimes surprising. Clearly, one cannot discount further surprises during the 1980s. Already, for example, 1981 has provided a largely unforeseen drop in world oil demand sufficient to reduce net requirements for OPEC oil to the lowest level since 1970, and to stimulate significant weakening of international oil prices. But many of the forces which will determine the market environment for Alaskan gas in 1987 are already in evidence. They suggest to us that energy markets in 1987 will be much different from energy markets of 1981, and that a commercial market will exist for Alaskan gas at that time.

Energy markets in mid 1981 are characterized by surplus--a persistent bubble in U.S. natural gas markets and a substantial international oil surplus. The oil surplus is the most recent development and one which has caught much of the industry by surprise. The world has weathered the Iraq-Iran war this past winter with no more than a minor flurry in the spot market in October/November, and emerged with evidence of a sizable market reaction to the price increases of 1979/1980. Free world oil demand this year might be no more than 46-47 million barrels per day, off about 3-4 million barrels per day from last year's levels. Net demand for OPEC oil could fall as low as 23 million barrels per day against an allowable OPEC capacity level of 30 million barrels per day. Total energy demand growth has fallen significantly below expectations and strong growth in both other energy sources and in non-OPEC oil have resulted in the sizable OPEC reduction.

In one view, this sudden change is more a reaction to faltering economic performance throughout the OECD than it is evidence of a new trend to deeper and more lasting demand response to higher price levels. World energy demand, and net demand on OPEC, both reacted to the sharp oil price increases of 1973/1974 only to resume a lower level of upward growth with an improvement in world economies in 1976. The nature of new increments of coal or nuclear capacity is that they are apt to be utilized first--as lowest in running cost--when total demand falters, thus levering oil demand downward in a recessionary year. But oil demand can readily return again as the economy strengthens. This pattern is being intensified during 1981 by the emergence of inventory liquidation of the excessively high world oil stocks which were built up in the market panic of 1979/1980. We look for a turnaround in OECD economic performance and in world oil demand by the early part of 1983, with a return of some supply insecurity and rising prices beyond that point.

We believe that the gas bubble will also begin to disappear as the U.S. economy develops some strength by 1983. Thus, the pattern which we foresee for 1983 and 1984--a return to conditions of excess gas demand--will characterize the middle years of the gas market before Alaskan gas flows to the Lower 48. The excess gas demand will be in response to the gas price controls retained under the NGPA, concurrent with domestic crude oil price deregulation (January 1981), which allowed prices to rise to international levels.

For gas, we have assumed that wellhead pricing will operate under the price constraints of the Natural Gas Policy Act through 1984. As presently envisioned, Section 102 gas--gas newly discovered since April 1977--will be deregulated, along with several other categories, and allowed to seek its own market level at that time. The original Congressional intent appears to have been to retain price controls on domestic natural gas while supply improvement was allowed to reduce the overhang of excess demand. The complex regulated gas price trajectories were to intersect with competitive fuel levels, so that an orderly transition to deregulation could occur in 1985. Clearly, the price levels, which Congress may have expected to provide an orderly transition in 1978, are totally unrealistic in 1981 after the oil price increases of 1979. While U.S. gas prices rose during 1979 at an almost unprecedented average rate of 3.4 cents per million Btus per month, the refiners' acquisition cost of crude oil in the United States rose at 15.4 cents per million Btus per month. Even residual fuel oil, which suffered price weakness from gas competition in a number of sections of the country, rose an average of 6.3 cents per million Btus per month. Thus, the gas price trajectory in the NGPA clearly failed to track competitive fuel levels in 1979. In our view, it will continue to fail to track the likely price trajectory of refiner acquisition cost of crude oil during the early 1980s. That suggests a significant price readjustment may take place in 1985 upon new gas deregulation, unless the supply of gas was so large as to set its own internal market clearing price structure without regard to competition from oil. In our view, this is extremely unlikely.

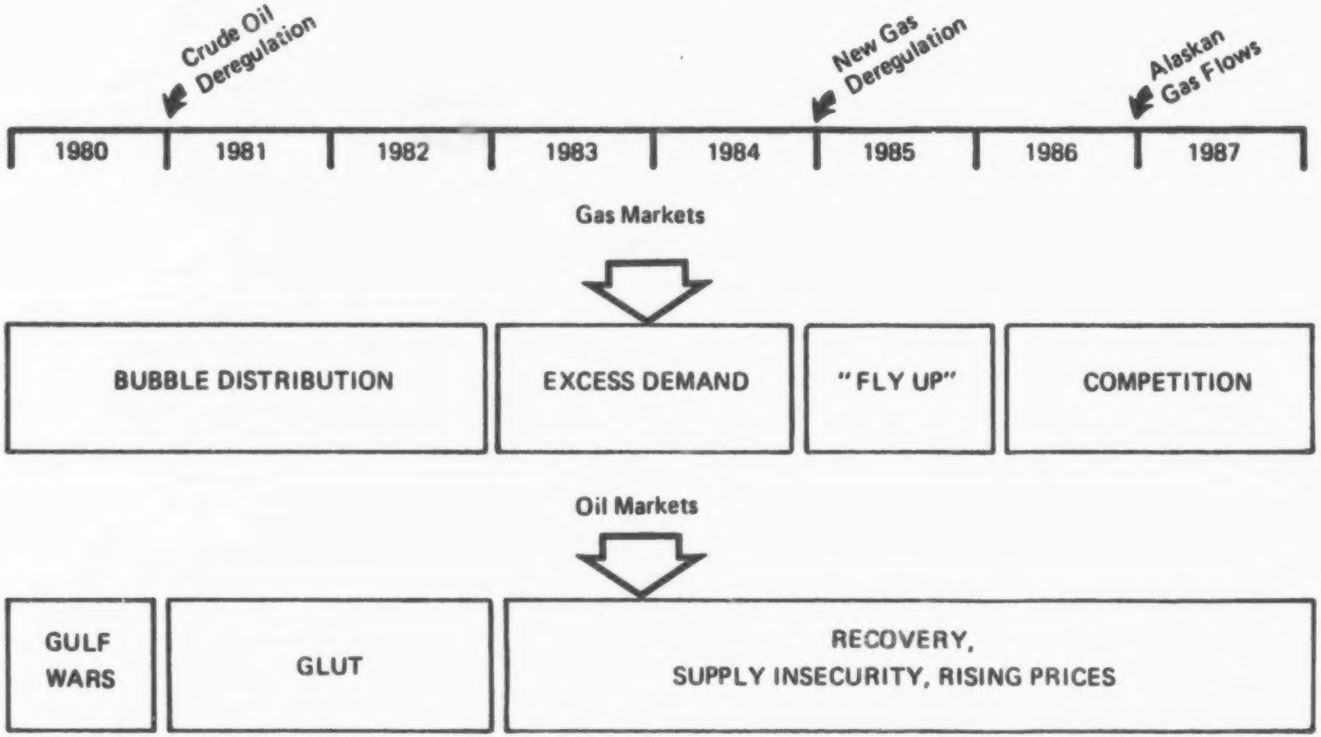
In projecting the evolution of gas/oil markets through the coming decade, the first new market environment which we envision is the return of excess gas demand. This is illustrated in Figure I-2. As the disparity between price-controlled natural gas and international oil prices continues, those customers with gas capability will increasingly prefer gas. In our view, this pattern was beginning to emerge during the 1979 oil price runup, but the creation of excess demand was blunted by the recession. But with a recovery from the recession, industrial demand should be restored. The economic driving force compelling dual-fuel demand towards gas will steadily mount.

Our detailed analysis of the demand potential suggests that gas demand would increase by 2 tcf between 1980 and 1985, if it were not constrained by supply. This is a demand level that the gas industry has not reached since 1973. Increasing conservation will limit the overall growth of residential and commercial demand. Growth in large boiler fuel and power generation uses will, we assume, continue to be restricted by federal regulation. Thus, the bulk of growth in demand would normally take place in high-valued industrial uses, primarily process gas. We estimate that about three-quarters of the overall demand increase will take place in the premium industrial fuel sector. The West South Central region, where most intrastate gas has been concentrated, has continually provided the largest increment of industrial demand growth and our projections assume that this will continue. One effect of the NGPA has been to control intrastate gas prices below competing fuels where intrastate markets were previously free to clear. Thus, the NGPA has created a financial incentive in both intrastate and interstate markets for industrial gas demand to grow.

The argument has frequently been advanced that many industrial gas users are reluctant to commit new or expanded installations to gas because of the potential unreliability of supply. The extent to which this threatened behavior is actually being practiced is debatable in our view. But,

FIGURE I-2

THE EVOLUTION OF GAS/OIL MARKETS DURING THE 1980's


Crude Oil Deregulation
New Gas Deregulation
Alaskan Gas Flows
1980
1981
1982
1983
1984
1985
1986
1987
Gas Markets
BUBBLE DISTRIBUTION
EXCESS DEMAND
"FLY UP"
COMPETITION
Oil Markets
GULF WARS
GLUT
RECOVERY,
SUPPLY INSECURITY, RISING PRICES

the demand may not develop as we project unless the gas industry makes a credible statement about its supply potential during this period. Nevertheless, the disparity between regulated natural gas and alternate energy prices will provide an economic incentive for the high-valued industrial demand to utilize natural gas, whenever it is available.

Our projections for supply are not so optimistic. Lower 48 natural gas reserve additions have been less than production for twelve years. We do not expect reserve additions to rise to present production levels, despite accelerated drilling during the forecast period. For this reason we see a continuation of the steady decline of proved reserves.

The rate at which existing reserves are being depleted has been increasing in recent years. Part of this has been the result of intensive developmental drilling for higher producing rates. Some of it is also attributable to the concentration of discoveries in geological areas such as South Louisiana, where unconsolidated sands provide high permeability and extremely high well flow rates. Much of the newer reserves which will be added in other areas are not of such high permeability and therefore may not be subject to such rapid depletion. We anticipate that depletion rates will level out and, in fact, might well decline somewhat as the shift in exploration takes place. Thus, in our view, production from the Lower 48 States will continue to decline with declining reserves. The burden of maintaining supply will shift more and more to supplements such as imported gas, coal gasification or the Alaskan gas project under analysis here. Because of the lag times associated with many of these projects, their contribution will grow slowly, and in our view not fully offset the decline in the Lower 48 conventional production. Thus, we look for a slight decline in total supply between 1980 and 1990. The result of these demand and supply trends, we believe, will be a renewal of the excess demand which confronted the gas industry in the early 1970s.

It is important to recognize that this excess demand will tend to occur during the period when much of the industrial boiler and power generation load is fully convertible into alternate fuels and can be quite flexible in its shifting. Thus, we would expect to see increasing interruption of dual-fueled boiler and power generation customers to offset the limited gas supplies. The level of total interruption to be borne by these customers in 1985 could be as much as 3.7 tcf if all new loads actually grow as projected. Over 75 percent of the reductions in deliveries would be to large boiler fuel customers and power generating plants. Regionally, the reductions would be heavily concentrated in markets where boiler fuel and power generation are important.

As the NGPA is currently written, several of the gas categories will be deregulated in 1985. Congress clearly expected that gas markets would be in balance at that time and would permit an orderly transition to deregulation. However, since the price trajectories of regulated gas are so much lower than those of deregulated oil, one now could expect market forces in 1985 to supply a significant gas price correction upon deregulation. This has been termed "flyup" in many discussions. One can picture a price correction for deregulated gas sufficient to bring the average value of all gas to market clearing levels. We call this level "allowable flyup."

It is the existence of a quantity of gas remaining under regulation below market clearing levels--a so-called "roll-in" capacity--which permits flyup to occur. We estimate that in 1987 some 4.4 tcf of gas will remain under regulation. It is in our lower-bound oil price case that gas is priced approximately $2.50 below clearing levels, creating some $11 billion of roll-in capacity. Alaskan gas in 1987 requires $3.7 billion of roll-in in this lower-bound case. In our least unlikely price scenario, the roll-in capacity rises to $24 billion in that year and Alaska requires less than $1 billion.

The relatively small annual volume of totally new reserves being committed after 1985 will be free to select price and contract terms without constraint. One could anticipate that undisciplined bidding for these comparatively small volumes of new supplies in a tight market could lead to quite high individual contract prices from the roll-in effect. There will also be a much larger volume of Section 102 and other gas (committed from 1977 to 1985) under contract which will be free to move to whatever internal limits the contracts themselves dictate. Where these contracts have provided for indefinite pricing provisions, such terms could well be triggered in 1985 and drag up a much larger volume of deregulated gas to higher levels as well. The actual way in which such flyup might occur is dependent both on the nature of the Section 102 gas contracts as well as on the market psychology of the time and its effect on the discipline gas buyers show to 1985 supply contracting.

Flyup is also an individual pipeline--rather than a nationwide--phenomenon. Some purchasing pipelines will clearly have more roll-in capacity; some will have less as contracting develops over the next years.

A further complication is the existence in many contracts of buyer escape clauses which enable the buyer to renegotiate his contracts downwards in the event of market pressures. One thus can envision a "flydown" effect as well, under certain circumstances.

The degree to which flyup will actually occur and absorb some roll-in capacity which could otherwise help to accommodate Alaskan gas is thus extremely difficult to estimate, particularly since much of the gas which will be subject to flyup is not yet under contract. We recognize that the gas industry could negotiate away much of its flexibility to absorb Alaskan gas, particularly in lower oil price cases. However, we sense a growing awareness of the problem among the pipelines, and see some evidence of attempts to address the issue through more careful supply planning. We thus believe it is manageable.

II. THE ROLE OF PRICE

Alaskan natural gas is expected to be delivered to the Lower 48 States in 1987 at a price which will range from $7.70 to $8.94 in constant 1980 dollars. This price range seems high when compared to the present prices of $4.94 for Canadian or Mexican gas at the border, or the $2.81 presently permitted for new (Section 102) gas under the NGPA, let alone the average price of $2.02 for all gas industry supply. But in these days of volatile energy pricing, the critical price relationships are those which will prevail in 1987 when Alaskan gas comes on line, rather than those of today. We believe that the price relationships among Alaskan gas, other gas sources, and alternate fuels will have altered substantially by that time.

Perhaps the single most important element in competitive fuel price formation during the 1980s will be the outlook for international oil prices. Rising prices for OPEC oil supplies have two important effects on oil and gas competition. First, rising oil prices tend to stimulate the demand for gas at the expense of oil--particularly in the price-sensitive dual-fuel market. But since prices of most supplementary supplies, such as LNG or overland imports, will increasingly be tied to international oil price levels, rising oil prices make these sources relatively less attractive by comparison with Alaskan gas. Thus, a rising oil price environment makes Alaskan gas increasingly competitive, not only with oil, but with most other supplementary gas sources as well.

In 1973, at the time of the first oil price shock, interstate natural gas prices in the United States were price-regulated at levels which did not reflect competitive fuel values. Intrastate prices had been held below alternate fuel prices by price competition in a period of surplus intrastate reserves. Imported Canadian gas was priced on a netback basis from the price-regulated U.S. market. After the rapid increase in oil prices in 1973/1974, reserve shortages in the intrastate market caused intrastate prices to break free of interstate pricing and move to alternate fuel parity based on residual fuel oil. The Canadians abandoned the policy of netback pricing to the regulated U.S. market and began tying their prices unilaterally to changes in international oil price levels.

The Canadian precedent of tying export gas prices to international oil prices has spread and become the general practice nearly everywhere. The past two years have seen negotiations between the U.S. and Mexico, the U.S. and Canada, Japan and Abu Dhabi, the Soviet Union and Iran, and both the U.S. and France with Algeria--all over the relationships between oil and gas pricing in international trade. While no uniform formula for linking such prices has yet been developed, it seems nearly certain that future increases in world gas prices will be directly linked to changes in world oil prices.

Since the passage of the NGPA, nearly all U.S. gas supply--intrastate as well as interstate--has been placed under price regulation in which price escalation is independent of changes in international oil prices. We estimate that the price of only about nine percent of U.S. gas supply was affected by oil price changes in 1980. Somewhat less than seven percent of U.S. gas supply in 1980 was from supplementary sources, either oil-based SNG or imported gas, and less than three percent was deregulated conventional production.

But by 1985, with the deregulation of new gas and the growth of supplements, only 27 percent of gas supply will remain fully price-regulated. Supplements will account for 19 percent and deregulated gas for 54 percent of total supply. The role of price-regulated gas declines as it is depleted and as supplements constitute a growing share of the total.

In the 1980 environment, the rapidly rising price for oil made gas competitively attractive. But by 1990, a rapidly increasing price for oil will lead to a rapidly increasing price for gas as well, since much of the gas supply will be price-linked to oil. Gas supply sources which avoid this direct linkage--such as Alaskan gas with its 20-year average price range of $4.22-$5.63--will be relatively favored. In a 1990 environment of escalating world oil prices, Alaskan natural gas with its large capital costs, will increasingly look like a bargain as the facilities are depreciated and costs decline.

The Outlook for Oil and Gas Prices

The favorable market outlook for Alaskan natural gas is heavily influenced by the expected future course of competitive oil and gas prices. Because of the importance of these future price estimates to the conclusions of this study, we have laid our analysis out in some detail in this section.

In this report, we utilize two forecasts of oil prices. One of these --our least unlikely case--is based on the expectation that international oil price formation will operate very much during the 1980s as it has during the 1970s. The dominant feature of recent international oil price development has been a sporadic political or military crisis in the Middle East; this has generated panic buying in the marketplace and a rapid escalation in oil prices. These prices subsequently decline in real terms as the disruption passes and world economic activity reacts to the sharp dislocations in pricing. For our least unlikely case, we have arbitrarily assumed that a disruption will occur in 1984 and the pricing pattern both during and after the disruption will be similar to 1973/1974 and 1979/1980.

For purposes of this analysis, however, we have assumed that such a forecast, with its disruptive price pattern, would not present a credible test of the marketability of Alaskan gas. Therefore, we have utilized instead a "lower-bound" price case which represents the lowest level of prices that we think are plausible over the next decade.

It is this projection--one which assumes that political disruption will have no significant effect on oil prices throughout the decade--which we utilize in this report to test Alaskan gas marketability. The basic crude projection has been adjusted for transportation and other crude oil sources, and then converted into a price series for the refiners' acquisition cost of crude oil. This series has been used in turn to develop both distillate and residual fuel oil prices by region.

Our gas price projections are made individually for the many regulated pricing categories of gas under the NGPA, as well as for the various supplemental gas projects and import volumes. These prices are then modified for transmission costs and for distribution margins to arrive at regional estimates of retail gas prices by type of customer.

The period following new natural gas price deregulation in 1985 poses special analytical problems because of the uncertainties surrounding the price behavior of deregulated gas after that time. Since the middle 1970s, most contracts--interstate and intrastate--have been written with escalation clauses, in some cases indefinite escalation clauses, which continue to increase even though the current price itself may be limited by regulation. In 1985, when deregulation occurs, many of these contracts will move to the levels established by the contract terms. In those cases with indefinite price escalators which will be permitted to operate after 1985, the behavior of buyers and sellers in 1985 in setting new price levels will bring up the value of old contracts as well. This phenomenon of upward price pressure with deregulation in 1985 will finally be defined both by the nature of the contracts written between now and 1985, but also by the marketplace psychology in 1985, particularly as it influences the willingness of suppliers to bid competitively for short supplies. Our analysis suggests that there will be excess gas demand in 1985 from markets that would prefer cheaper gas to more expensive oil. We thus believe that some level of flyup is inevitable. Recent offers by gas pipeline companies as high as $7-$8/mcf for deep Tuscaloosa Trend gas in Louisiana indicate the potential for high prices in the early days of decontrol, while average gas costs remain low.

To illustrate the way in which flyup might operate, we have allowed the price increases for deregulated gas in 1985 to rise to a level high enough to bring average gas prices to estimated clearing levels. We call this "allowable flyup." Because of the disparity between gas and oil price levels at that time, the flyup price increases are comparatively large. Figure II-1 shows our projections of conventional Lower 48 prices (including "allowable flyup"), together with Alaskan gas, all other supplements, the hypothetical clearing price, and the refiners' acquisition cost for crude oil.

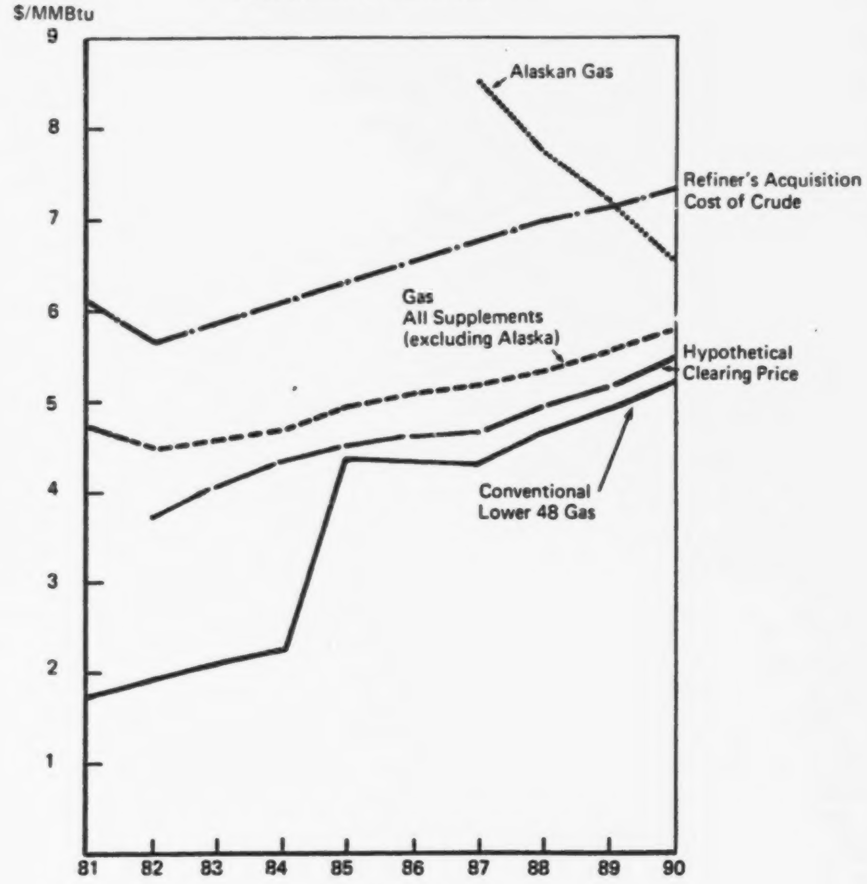
International Oil Markets and OPEC

From 1973 to 1981, prices of international oil to U.S. markets rose at an average rate of nearly 14 percent per year in real terms. This was not

FIGURE II-1

GAS WELLHEAD PRICES COMPARED WITH REFINER'S CRUDE ACQUISITION COST

(1980 Dollars per million Btu)



Source: Jensen Associates, Inc.

a classical steady growth curve, however, since virtually all of the increase was confined to two comparatively short periods--October 1973 to February 1974 during the Arab oil embargo, and again from December 1978 to February 1980 precipitated by the Iranian revolution. There is thus compelling evidence that the dominant force in real price increases over the decade has been the panic buying which accompanied the crisis markets of 1973/1974 and 1978/1980 rather than any orderly price administration by OPEC. OPEC's principal role has been to resist the erosion of real oil prices during the periods between rises.

Both of the sharp price runups occurred when a sudden loss of production within OPEC occurred during periods of strong demand for OPEC oil. The embargo, through its politically mandated production cuts, took roughly 3 MMbpd of OPEC capacity out of service at a time when world economies were booming and demand was approaching physical capacity limits. The Iranian Revolution reduced Iranian production by nearly 5.5 MMbpd at a time when underlying demand was not so strong, but psychological fears of shortage caused unprecedented inventory accumulation worldwide.

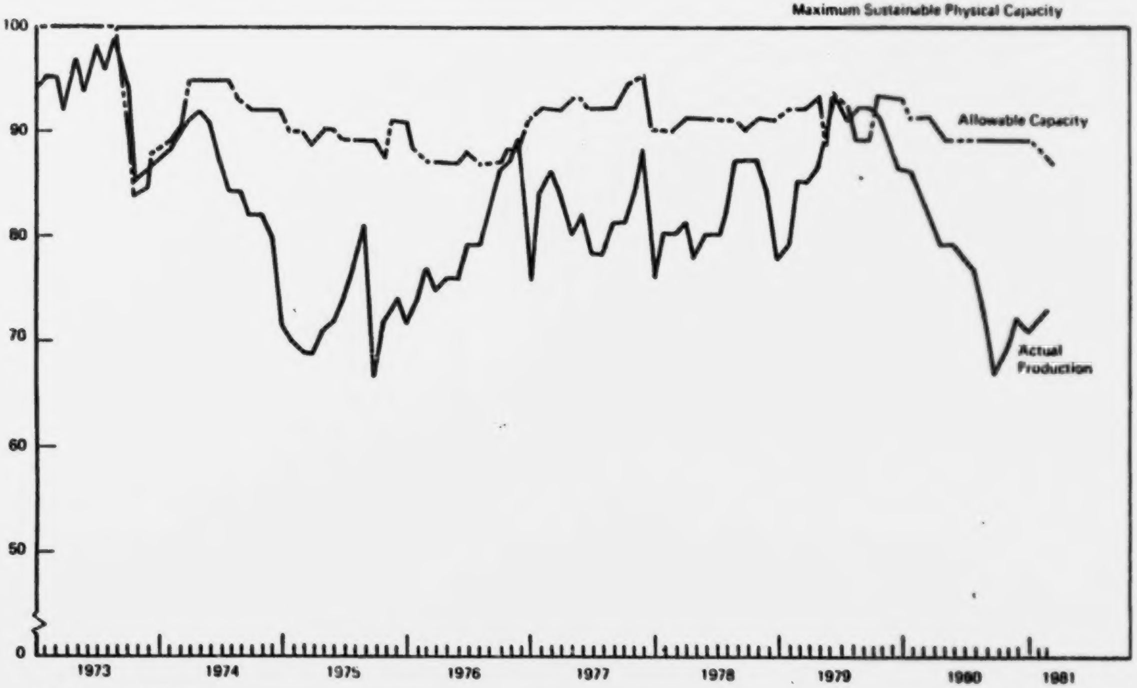
Except for these two periods of market-inspired price behavior, international oil pricing has largely been the result of OPEC price administration decisions within the context of OPEC political debate. Thus, for most of the past eight years, interpretation of the conflicting political pressures within OPEC has been a more important tool for projecting oil prices than the more classic economic analysis of supply and demand has been. This is not to say that supply and demand relationships are not important, but they have served to set the stage on which the price debate has taken place, rather than to establish prices directly.

Figure II-2 shows OPEC production and "allowable capacity" as a percent of maximum sustainable physical capacity within OPEC over the past eight years. In 1973 OPEC physical capacity stood at 32 MMbpd and most projections at the time expected it to rise to the lower to mid 40s by the end of the decade as steady demand for OPEC oil continued to mount. After the takeovers of control of their own oil which accompanied the 1973/1974 period, most OPEC members could not or would not increase capacity. However, since 1973, demand has been significantly less than had been anticipated earlier so the added capacity has been, for the most part, unnecessary. Physical capacity in OPEC peaked in 1976/1977 at 38 MMbpd and has since declined to 34 MMbpd, in part as a result of the loss--perhaps permanently--of a portion of Iranian capacity.

The concept of "allowables" was first developed by Kuwait, which has consistently argued that keeping oil in the ground is a safer way to protect surplus wealth than creating financial assets from higher production and revenue levels. Allowable limits have now been adopted by other surplus countries such as Saudi Arabia and Abu Dhabi. The argument of the surplus countries is that the world should not count on OPEC's delivering more than its allowable capacity even though production in excess of allowables may occasionally be utilized for special purposes. Saudi Arabia, for

FIGURE II-2

ACTUAL AND ALLOWABLE CRUDE OUTPUT AS % OF MAXIMUM SUSTAINABLE PHYSICAL CAPACITY



Source: Jensen Associates, Inc.

example, currently is producing 10.3 MMbpd against an allowable of 8.5 MMbpd as a part of its internal OPEC dispute over price reunification.

As is evident from Figure II-2, demand for OPEC oil was approaching physical limits in 1973 when the embargo sharply reduced OPEC's available production. While the price increases of October 1973 and January 1974 were OPEC-dictated, they were foreshadowed by a spot market which rose to even higher levels as a result of threatened shortages.

Figure II-3 shows the U.S. refiners' acquisition cost of imported crude oil in constant 1980 dollars compared to OPEC production as a percent of allowable capacity. In both the 1973/1974 and 1978/1979 price jumps, OPEC production exceeded allowable capacity. The only other time when that occurred was in the Winter of 1976/1977 when OPEC production reached an all time high of 34 MMbpd. An increase in the Saudi allowable capacity helped to avert a greater nominal price increase at that time.

Many observers--including ourselves--expected another possible upward price spike during the Winter of 1980/1981 with the loss of capacity from the Iraq-Iran war. Indeed, there was a flurry of rising spot activity in October and November which subsequently subsided. In retrospect, it appears that the market had weakened sufficiently so that the panic psychology which dominated 1979 markets was fully dissipated.

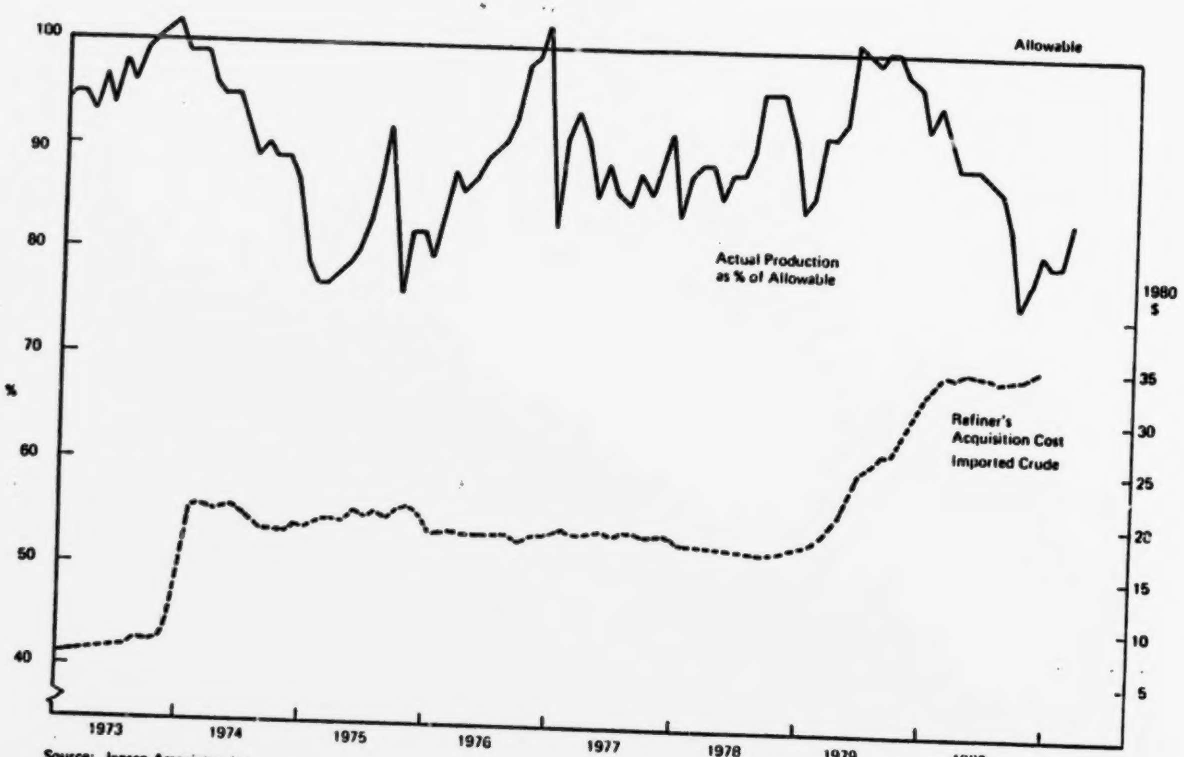
We are now--as of June 1981--in a much softer oil market than most forecasters anticipated. Free world demand for oil may fall to 46-47 MMbpd this year and net demand for OPEC oil could be as low as 23 MMbpd--the lowest level since 1970. This would place the demand on OPEC at about 74 percent of allowable capacity, a level even lower than in the weak market of 1975. The question is naturally being raised as to whether this low a demand represents a new long-term secular trend, and whether the assumption that OPEC can dictate price levels in all but tight and rising markets is still valid. Can OPEC, in fact, hold together and prevent further erosion of prices in a market such as this?

We at Jensen Associates believe that the underlying OPEC structure is not seriously threatened by present market conditions, despite an appearance of internal dissension within the organization. We view the present market downturn as more cyclical than long-term, although major long-term changes in demand are clearly taking place. The world oil surplus results largely from a reduction in energy demand--in part recession influenced--rather than an increase in alternate energy supply above expected levels. If anything, alternate energy supplies have consistently fallen below projected levels throughout the world.

There has been a tendency for OPEC oil to play a swing role in world energy demand. This tends to exaggerate the effect of short-term energy market changes on the demand for imported oil and suggests that a sharp 1981 downturn could be followed by a sharp rebound with improving world economic conditions. In a static world energy supply pattern, where OPEC

FIGURE II-3

CRUDE PRICES VS OPEC CAPACITY OPERATION



Source: Jensen Associates, Inc.

oil bore the entire swing in total demand, a downturn of one percent in world energy demand would manifest itself as a four percent downturn in OPEC oil demand. This would result from the fact that oil represents about half of energy supply, and OPEC oil is about half of total oil supply.

While OPEC oil does not fully occupy the swing role--downturns in the steel industry reduce coking coal demand and U.S. natural gas demand has been affected by a sluggish economy--we believe that most of the downturn is indeed concentrated on OPEC. World energy supply is also dynamic, rather than static, so that when previously planned increments of new alternate energy supply exceed the demand for them, they tend to back out imported oil selectively. Thus, we believe much of the present decline in OPEC demand is short-term, rather than long-term.

We expect to see a measure of economic recovery in the OECD by 1983 and anticipate a strengthening of demand on OPEC at that time. Thus, we look for a continuation of OPEC's ability to establish floors on world market prices during soft markets.

During the Spring and early Summer of 1981, the popular and business press has been full of reports of falling oil prices, and frequent suggestions that OPEC may in fact have lost its ability to prevent price erosion in soft markets. While it is clear that spot markets are falling, that some governments are cutting official selling prices, and that prices are declining in nominal as well as real terms, this evidence of price weakness in OPEC is somewhat misleading.

The chaotic markets of 1979 and 1980 led to substantial disorder in OPEC pricing patterns. During the more placid markets between 1974 and 1978, OPEC operated on a "marker crude" system in which the price of the principal Saudi crude--Arab Light--was priced by OPEC agreement and values of all other crudes were based on their quality or transportation differentials relative to Arab Light. The light African crudes from Algeria, Libya and Nigeria, for example, usually enjoyed about a $1.50 per barrel premium over Arab Light based on both their higher quality and their relative nearness to market. Today those market-dictated differentials are perhaps no higher than $2.00 per barrel.

During the turbulent markets of 1979, some OPEC governments were able to command prices which had little market logic since buyers were desperate to have secure supply regardless of price. Some of the African crudes have been officially priced at $41 per barrel--a full $9 per barrel over the official government selling price of Arab Light at $32 and therefore much higher than the normal market differential of $1.50-$2.00. The highly publicized oil price cutting has been concentrated in the abnormally high differentials being asked by the price hawks, rather than in the underlying price structure of the Arab Light marker.

Before the Iranian Revolution, OPEC, with strong Saudi support, established a long-range strategy committee to consider a number of long-term problems facing OPEC. One major focus of the study was a desirable future course for world oil prices. The committee's recommendation was for a gradual but steady increase in real crude prices to replace the stop-start pattern of crude price increases which characterized the 1970s. The committee called for a formula to adjust the price to cover inflation, to adjust for changes in the value of the dollar, and to add a real price increment based on the growth of GNP within the industrialized countries. It has been quite clear that Saudi Arabia has been a major backer of this proposal within OPEC. However, the orderly pricing formula presumes a unified and orderly set of differentials about the marker crude. The 1979 market conditions effectively destroyed the unified OPEC price structure which could serve as a base for the application of the long-range pricing formula.

The Saudi official price for Arab Light has been $32. Most other OPEC members have adopted a "deemed marker crude" which most commonly is based on the assumption that the marker sells for $36. "Special market premiums" over and above normal differentials have been adopted by some governments.

The present Saudi policy of producing at 10.3 MMbpd rather than at their 8.5 MMbpd allowable in the face of world oil surpluses seems designed to force market realignment of the hawks' differentials about some orderly marker crude structure.

Until recently we--like many other oil market observers--believed that the Saudis were sufficently committed to the OPEC long-range planning formula that they were prepared to make price concessions on their $32 in order to reunify the system. Indeed, the Saudis themselves had sold "war relief oil"--a special offering designed to assist those who had lost supply because of the Iraq-Iran war--at a price of $36. This led many observers to conclude that this was the logical compromise price for a unified marker system.

More recently, however, it appears that the Saudis have become concerned at the extent of the 1981 downturn in OPEC oil demand, questioning whether prices have gotten too high. They now appear to have shifted policies to force compromise nearer their present $32 official price, despite the ill will which that effort appears to be earning them in some OPEC circles. Some of the widely publicized price cuts by the OPEC members are consistent with the $36 or a $34 marker. The $32 marker is as yet not accepted as a compromise standard.

The Crude Price Projections

Our lower-bound crude oil price projection assumes that the unified price will be based on a real $32 marker (as of June 1981) which will hold through the end of 1982. With a pickup in world oil demand in 1983, the real price will again start to rise with the long-range planning formula at a rate of about three percent per year. The actual unification may not require that other OPEC members be forced to recognize and accept that $32 price, since it would be possible for them to save face by freezing at some higher level until the inflation-dictated increase in the nominal marker price rose to an appropriate level.

Our least unlikely case assumes surpluses persist through 1982, as well, and that the formula is applied in 1983. However, it also assumes that some disruptive market event will occur before 1987--we have arbitrarily placed it in 1984--with price behavior during and after the event similar to the 1973/1974 and 1979/1980 disruptions. The least unlikely case, with its disruption, results in an overall real price increase of eight percent per year to 1990. While this is significantly higher than many current oil price projections, it is considerably lower than the 14 percent per year actual real price increase from 1973 to 1981. The increase in the lower-bound case is 2.5 percent per year over the same period. These projections are shown in Figure II-4.

Oil Prices for the U.S.A.

We have forecasted a basic crude oil price in the Arabian Gulf, f.o.b. the export terminal. Such crude has to be transported to the U.S.; it will form only part of a selection of crudes that American refiners import; and the oil with which Alaskan gas competes in regional final markets will be refined products, mainly No. 2 oil and No. 6 oil.

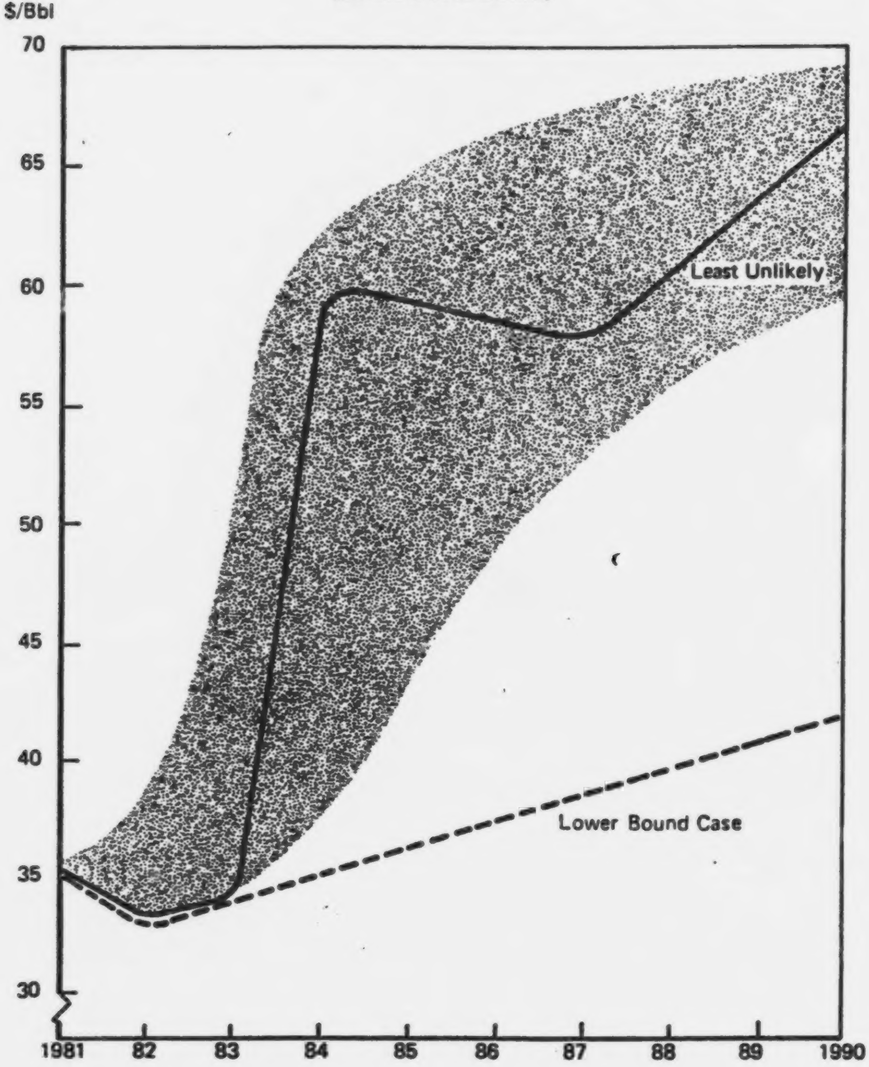
Even while a surplus of capacity overhangs the world tanker market, there continue to be quite sharp fluctuations in freight rates--partly because the surplus is not uniform for all sizes of vessels, and partly because unpredictable demands for tonnage (e.g. recently for Very Large Crude Carriers and Ultra Large Crude Carriers for use as floating storage) often occur. More generally, the shift of a growing proportion of crude oil exports from the integrated trading channels of the international major oil companies into non-integrated trading by OPEC national companies with smaller scale private buyers or governmental buyers downstream has reduced logistic efficiency in the whole international employment of tankers. Slow steaming to reduce fuel costs, again, involves more tankers for any given ton mileage of crude oil movement.

Those factors have raised oil transport costs during the last two years. High prices for oil fuels will continue to tilt the economics of tanker operation. Logistic inefficiencies arising from less integration in world oil trading may also persist. On the other hand, the deepening and widening of the Suez Canal that has now been completed, and the possibility of further increases in its capacity to handle large tankers by about 1985, point to some reduction in the average distances that oil will have to move by sea to markets. And recent forecasts by tanker experts that freight rates may resume an upward trend (as distinct from short-term fluctuations) by about 1983-1985 have generally assumed rather higher growth rates in the world economy for this decade than most analysts now seem inclined to count upon.

FIGURE II-4

PROJECTIONS OF THE DELIVERED PRICE OF OPEC'S MARKER CRUDE

(Constant 1980 Dollars)



Source: Jensen Associates, Inc.

Detailed predictions of tanker employment and freight rates thus remain as complex as ever. But for the projection of landed prices for crude, it has become less important. Freight costs now represent such a small proportion of c.i.f. prices that one's assumptions about the changes in them make little difference to the projections we have made of crude prices f.o.b. Arbitrarily, we are assuming that average tanker freight costs from the Arabian Gulf to the Texas Gulf remain constant in real terms until 1985, and then rise five percent in real terms annually to 1990. But freight is now so small in comparison with the f.o.b. price that our resultant projections of c.i.f. crude prices (Figure II-4) differ hardly at all in slope from the f.o.b. price trajectories we have already set out. (An alternative assumption raising this real freight cost increase to 10 percent annually, or starting it earlier, would make a difference of cents rather than dollars per barrel.)

Product Prices

Natural gas competes with distillate fuel oil in residential, some commercial, and high-value industrial markets. It is most likely to compete with residual fuel oil in industrial boiler fuel and power generation markets. Since the higher-valued, distillate-competitive markets tend to be protected from erosion by both price and priority curtailment status, it is residual fuel which incremental gas supplies most tend to displace.

We have estimated future refinery margins both for distillate and the several sulfur grades of residual fuel oil in making our regional analyses of interfuel competition. Typically, high-sulfur residual fuel oil sells below the cost of crude oil in the United States, while distillate fuel oil carries significant refining margin premiums. These product differentials tend to be volatile, depending on market conditions, and variations can be especially severe in the case of high-sulfur fuel oil in sloppy markets. Nonetheless, total margins between distillate and high-sulfur residual fuel oil in the U.S. tended to average out in the $3.00-4.00/bbl range during much of 1976 and 1977. From late 1978 through 1979, margins blew apart (rising to above $10.88/bbl at one point) as the worldwide problem of adapting to market pressures for lighter, sweeter product mixes came into conflict with the trend toward greater availability of heavier, higher-sulfur crudes. With the worldwide recession and product surpluses more widespread, margins have again collapsed closer to traditional levels.

In our estimates, we expect the tendency will be for wider, rather than the traditionally narrower, product price spreads as the growing need for deeper cracking, coking and hydrogen processing by refiners greatly increases refining complexity and costs. Our margin projections reflect these judgments and are incorporated in our regional interfuel competition analysis.

III. FORECAST OF LOWER 48 STATES GAS SUPPLY

Summary Forecast

An important part of analyzing the marketability of Alaskan North Slope natural gas is the overall gas supply forecast for the Lower 48 States (L48) against which gas demands can be compared. The Jensen Associates' forecast of gas availability to the L48 during the period 1980-1990 is provided as Table III-1. It includes both conventional L48 natural gas production and supplemental sources.

Overall, we expect supply to the L48 to decline from 20.5 tcf in 1980 to about 18.5 tcf in 1990, or by 10 percent during the decade. The net loss of 2.0 tcf results from an expected 5.1 tcf drop in conventional production being partially offset by a 3.1 tcf increase in annual supplemental supplies available by 1990. The supplemental supplies forecast includes unconventional production from low-permeability reservoirs, North Slope gas, Canadian and Mexican pipeline imports, LNG imports and high-Btu synthetic gas manufactured from light liquid hydrocarbons and coal.

Lower 48 States Production

Natural gas reserves and production statistics of the American Gas Association (AGA) show that conventional L48 production rates for natural gas peaked at 22.5 tcf in 1973, then fell annually through 1978 to a level of 19.1 tcf. In 1979, this trend was reversed as production rose to 19.7 tcf, despite a continuing decline in proved reserves which started in 1969. The year 1979 also showed some improvement in L48 reserve additions--reaching nearly 14 tcf. This was considerably better than the 9.8 tcf annual average additions for the 1970s. Table III-2 summarizes natural gas reserves and production figures for the period 1966-1979. Figure III-1 highlights the erosion of the proved reserves base which has occurred as production annually exceeded reserve additions between 1968 and 1979.

Although the AGA no longer develops or publishes gas reserves and production estimates, preliminary figures from the U.S. Department of Energy indicate that L48 production will be down by 0.3 tcf in 1980 from 1979, or at a level of 19.4 tcf on the AGA scale.

Despite this recent slowing in the decline of L48 gas production, we believe that the pace will quicken again during the 1980s. We expect average annual natural gas reserve additions for the L48 will remain substantially below production levels and that, at some point, production rates as a percent of proved reserves will peak, causing production to fall more rapidly thereafter. In recent years, production has been held above 19 tcf per year by steady increases in the rate-of-take from remaining reserves. This has occurred as a result of increased emphasis on in-fill and other relatively low-risk developmental drilling activity. This type of drilling

TABLE III-1

LOWER 48 STATES TOTAL GAS SUPPLY FORECAST
1980 - 1990
(Trillion cubic feet)

Source	1980[a]	1985	1990
Conventional Production	19.4	16.1	14.3
Unconventional Production	0	0.1	0.3
Alaskan Gas	0	0	0.7
Canadian Imports	0.8	1.6	1.4
Mexican Imports	0.1	0.4	0.7
LNG Imports	0.1	0.5	0.7
SNG - Oil Feed	0.1	0.1-0.4	0.1-0.4
- Coal Feed[b]	0	nil	0.2
Total Supply	20.5	18.8-19.1	18.4-18.7

[a] Preliminary.

[b] Excludes low and medium Btu gas.

Source: Jensen Associates, Inc.

TABLE III-2

NATURAL GAS PROVED RESERVES AND PRODUCTION
LOWER 48 STATES
1966-1979
(Trillion cubic feet)

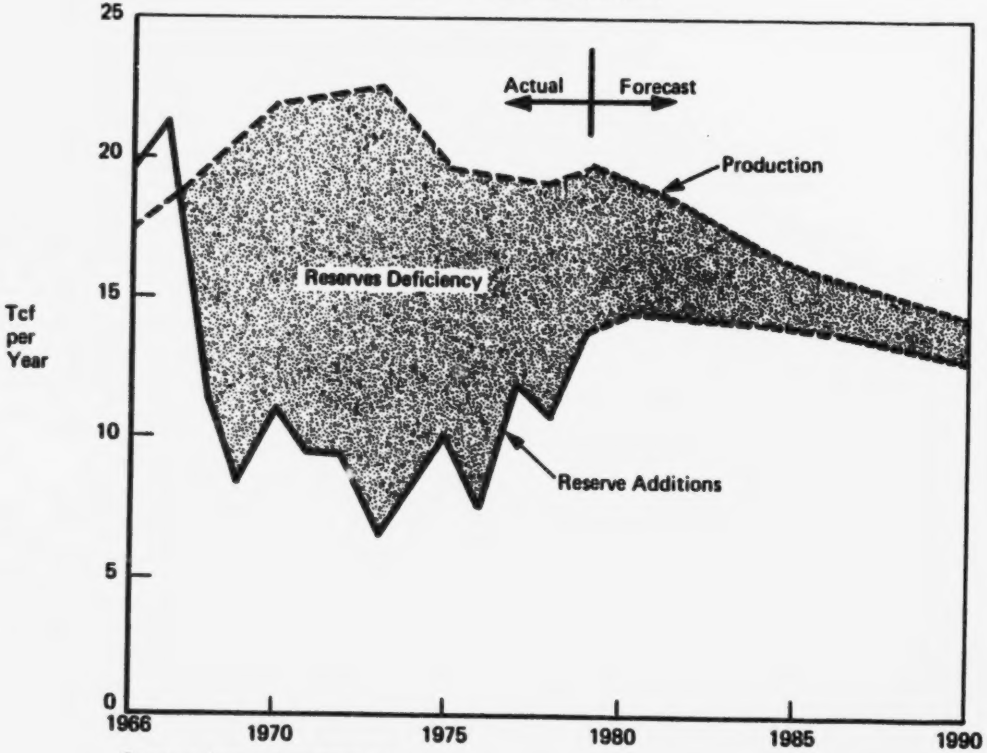
Year	Year-end Proved Reserves	Annual Production	Annual Additions to Proved Reserves	Annual Decline in Proved Reserves*
1966	286.39	17.48	19.25	(1.91)
1967	289.27	18.36	21.09	(2.88)
1968	282.10	19.33	12.04	7.17
1969	269.91	20.64	8.34	12.19
1970	259.62	21.82	11.12	10.29
1971	247.44	21.92	9.44	12.18
1972	234.63	22.37	9.40	12.81
1973	218.31	22.47	6.51	16.32
1974	205.27	21.17	8.31	13.04
1975	196.15	19.56	10.14	9.12
1976	184.10	19.32	7.45	12.05
1977	177.05	19.26	11.76	7.05
1978	168.69	19.10	10.59	8.36
1979	162.98	19.69	13.73	5.71

* Includes changes in volume of gas in underground storage.

Source: Jensen Associates, Inc.
American Gas Association, American Petroleum Institute, "Reserves of Crude Oil, Natural Gas Liquids and Natural Gas in the U.S. and Canada"

FIGURE III-1

NATURAL GAS PRODUCTION AND RESERVE ADDITIONS
LOWER 48 STATES 1966-1990
(trillion cubic feet per year)



Sources: Jensen Associates, Inc.
American Gas Association

was stimulated by the large increases in real prices for interstate gas made available in 1976 by FPC Opinions 770 and 770-A.

The relationship between natural gas reserves and production rates, expressed as a reserves-to-producton (R/P) ratio for the years 1966-1979, is shown in Table III-3. After appearing to flatten out at a value of about 10 in the mid 1970s, the R/P ratio continued to fall through 1979. In 1977 when the R/P ratio first dropped below 10, there was a significant increase in the developmental gas well share of total gas wells completed and this increased emphasis on developmental wells has been maintained through 1980 as shown in Table III-4. The higher gas prices which we believe caused this jump in developmental drilling activity can be seen in Table III-5. In 1976, FPC Opinions 770 and 770-A increased the National Rate by 91 cents per mcf for wells drilled after January 1, 1975. The effects these higher prices for gas from new wells had on average wellhead prices are shown in Table III-6, in both current dollars and constant 1980 dollars.

Our gas production forecast is based on analyses of historic trends in both proved reserve additions and production from proved reserves. For reserve additions, this means that we evaluate drilling activity in the major gas-producing areas of the country. We analyze those market forces which have affected the level of gas and oil well drilling and then forecast a level of activity for the 1980-1990 period. Reserve additions, however, do not automatically flow from additional drilling. Some measure of the success of drilling must be applied. Past finding rates (the amount of gas found per foot of well drilled) are studied and projected. When finding rates for a given period are combined with forecast drilling, the product is an estimate of future reserve additions.

American Petroleum Institute (API) drilling data show that gas well drilling activity has been increasing each year since 1971. The most dramatic increase occurred in 1977 when footage exceeded the previous year by over 12 million feet. Table III-7 shows both gas and oil well drilling statistics for the 1966-1980 period. Examination of the figures in Table III-7 shows that although healthy gas well footage increases have continued through the period, there has been a definite decrease in the rate of growth in absolute and percentage terms since 1977. In 1978 and 1979, this slackening may have been caused by drilling activity having caught up with the available rigs, manpower, and other supporting systems necessary for a major drilling increase. However, by 1980, it appears that lead times for a buildup have been met as evidenced by the recordbreaking increases in gas plus oil well footages.

From Table III-7 and Figure III-2, it can be seen that in 1980 oil well drilling had taken preference over gas. Oil well footage climbed 30 million feet in 1980 versus seven million feet for gas. In all but two other years during the 1970s, gas well footage increases have exceeded oil well footage increases. The attractiveness of rising oil prices and the promise of crude oil price deregulation in 1981 had cut deeply into the gas

TABLE III-3

NATURAL GAS RESERVES/PRODUCTION RATIOS*
LOWER 48 STATES
1966-1979

Year	R/P
1966	16.3
1967	15.6
1968	15.0
1969	13.7
1970	12.4
1971	11.8
1972	11.1
1973	10.4
1974	10.3
1975	10.5
1976	10.2
1977	9.6
1978	9.3
1979	8.6

$* = \frac{\text{Previous Year Reserves}}{\text{Current Year Production}}$

Source: Jensen Associates, Inc.
American Gas Association/American Petroleum Institute, "Reserves of Crude Oil, Natural Gas Liquids and Natural Gas in the U.S. and Canada"

TABLE III-4

GAS WELL COMPLETIONS BY TYPES
LOWER 48 STATES
1967-1980

Year	Gas Wells Completed	Percent of Gas Completions		
		Developmental	Exploratory	Wildcat
1967	3,655	85.5	14.5	5.1
1968	3,449	85.9	14.1	3.7
1969	4,072	84.9	15.1	5.7
1970	3,835	87.5	12.5	4.8
1971	3,829	88.6	11.4	5.3
1972	4,926	87.8	12.2	5.5
1973	6,382	85.9	14.1	6.5
1974	7,236	83.5	16.5	6.2
1975	7,576	84.6	15.4	5.9
1976	9,084	84.6	15.4	6.0
1977	11,374	87.0	13.0	4.6
1978	13,060	87.7	12.3	4.1
1979	14,677	87.9	12.1	4.6
1980	15,727	87.5	12.5	4.4

Source: Jensen Associates, Inc.
American Petroleum Institute, "Quarterly Review of Drilling Statistics"

TABLE III-5

CEILING PRICES FOR "NEW" VINTAGE NATURAL GAS[a]

(Current dollars)

Year		Ceiling Price
1970	Hugoton-Anadarko Area (FPC Opinion 568)	19.0¢-20.5¢/mcf
1971	Southern Lousiana Area (FPC Opinion 598)	26¢/mcf
1973	Permian Basin Area (FPC Opinion 662)	35¢/mcf
1974	National Rate (FPC Opinion 699)	42¢/mcf (+ 1¢/annum)
1974	National Rate (FPC Opinion 699-H)	50¢/mcf (+ 1¢/annum)
1976	National Rate (FPC Opinions 770, 770-A)	$1.42/mcf (+ 1¢/quarter)
1978 (December)	Natural Gas Policy Act	$1.97/mcf[b] Section 103 gas $2.08/mcf[b] Section 102 gas
1981 (March)	Natural Gas Policy Act	$2.41/mcf[b] Section 103 gas $2.73/mcf[b] Section 102 gas

[a] The definition of "new" is not uniform, and at times depends upon contract date, well commencement date, and other criteria.

[b] Includes escalation adjustments to the indicated month.

Source: Jensen Associates, Inc.

TABLE III-6

AVERAGE WELLHEAD PRICE FOR NATURAL GAS
UNITED STATES
1966-1980
(Dollars/mcf)

Year	Current Dollars	1980 Dollars
1966	0.157	0.36
1967	0.160	0.36
1968	0.164	0.35
1969	0.167	0.34
1970	0.171	0.33
1971	0.182	0.34
1972	0.186	0.33
1973	0.216	0.36
1974	0.304	0.46
1975	0.445	0.62
1976	0.580	0.77
1977	0.790	0.99
1978	0.905	1.06
1979	1.144	1.25
1980	1.47 estimated	1.47

Source: Jensen Associates, Inc.
Department of Energy, "Monthly Energy Review"

TABLE III-7

GAS AND OIL WELL COMPLETION FOOTAGE
LOWER 48 STATES
1966-1980
(Million feet)

Year	Gas Well Completions Footage	Gas Well Completions Annual Increase	Gas Well Completions % Increase	Oil Well Completions Footage	Oil Well Completions Annual Increase	Oil Well Completions % Increase	Gas Share of Completion Footage
1966	25.91	--	--	67.07	--	--	27.9%
1967	21.53	(4.38)	(16.90%)	58.24	(9.10)	(13.51%)	27.0%
1968	20.67	(0.86)	(3.99%)	58.67	0.43	0.73%	26.1%
1969	24.06	3.39	16.40%	61.13	2.46	4.19%	28.2%
1970	22.85	(1.21)	(5.03%)	56.39	(4.74)	7.75%	28.8%
1971	22.61	(0.24)	(1.05%)	48.27	(8.12)	(14.40%)	31.9%
1972	26.75	4.14	18.31%	48.41	0.14	--	35.6%
1973	35.59	8.84	33.05%	44.43	(3.98)	(8.22%)	44.5%
1974	38.98	3.39	9.53%	50.01	5.58	12.56%	43.8%
1975	41.90	2.92	7.49%	64.09	14.08	28.15%	39.5%
1976	47.49	5.59	13.34%	66.20	2.11	3.29%	41.8%
1977	59.51	12.02	25.31%	74.85	8.65	13.07%	44.3%
1978	70.18	10.67	17.93%	72.06	(2.79)	(3.73%)	49.3%
1979	77.72	7.54	10.74%	78.15	6.09	8.45%	49.9%
1980	85.03	7.31	8.41%	108.37	30.22	38.67%	44.0%

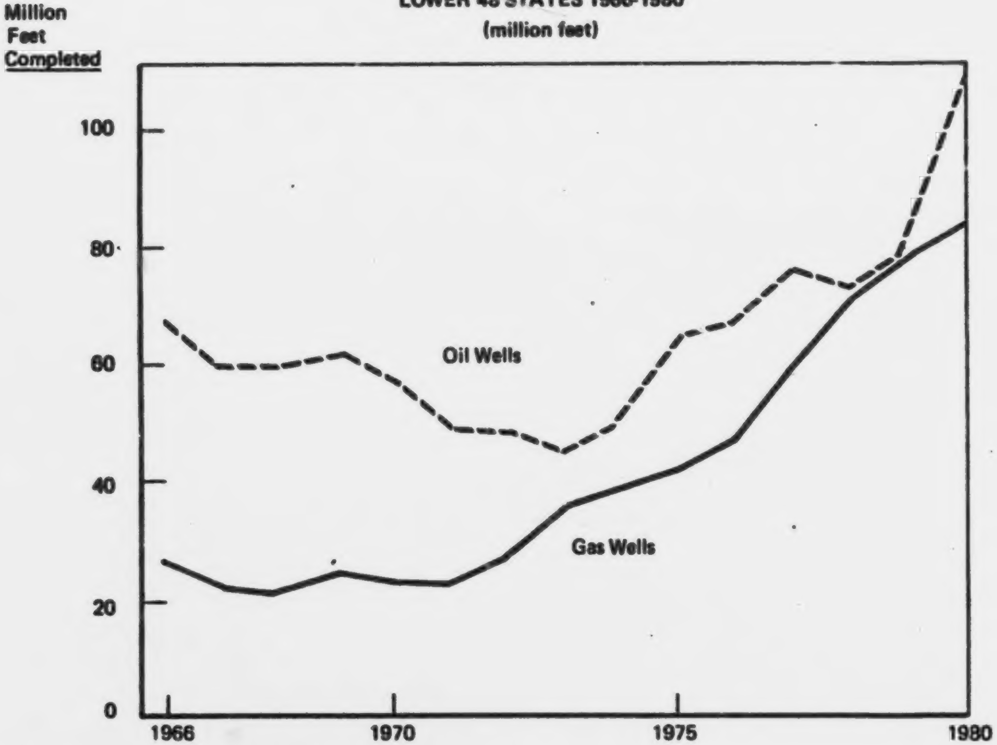
Source: Jensen Associates, Inc.
American Petroleum Institute, "Quarterly Review of Drilling Statistics"

FIGURE III-2

GAS AND OIL WELL COMPLETION FOOTAGE

LOWER 48 STATES 1966-1980

(million feet)



Source: Jensen Associates, Inc.
American Gas Association

share of drilling activity in 1980. API reports that through March 1981, oil well completions are running 35 percent ahead of the same period in 1980, while gas well completions are five percent behind last year's rate, indicating even further drilling preferences for oil over gas may be occurring.

Because of the significantly higher real prices available for many types of regulated gas and the promise of deregulation in 1985, we believe gas well drilling will continue to increase, but at a slower rate, into the late 1980s before leveling off at a plateau nearly 45 percent above the 1979 pace. Thus, we expect the NGPA price incentives to cause a continuation of the gas well drilling surge which began in 1976 as a result of higher real prices made available for interstate gas by the National Rates of the Federal Power Commission. Increases in oil well drilling should support associated/dissolved gas production approximating 10 percent of the gas volume available from gas wells.

We expect a continuation of the long declines in gas finding rates from gas and oil well drilling. Figure III-3 presents actual finding rates for non-associated and associated/dissolved gas for 1966 through 1979. Units are in mcf of annual gas reserve additions per foot drilled as completed gas wells. Separate rates are shown for cases with annual reserve revisions included and excluded. Both cases show a rapid fall in finding rates for non-associated gas through the early 1970s, moderating to a more gradual decline in recent years. The cause of this trend change is the higher real prices available for gas, which tend to push more previously marginal wells into the commercial category.

Statistics for 1980 show that an increasing share of gas well drilling has gone to exploratory wells where risks are higher, but chances of major discoveries are improved. This, plus any increase in the availability of Federal lands for exploration, could also be helpful in improving finding rates. Finding rates for associated/dissolved gas from oil wells are also expected to continue their more gradual decline through 1990 and beyond.

We forecast non-associated gas finding rates to decline from 150 mcf per foot drilled to 103 mcf between 1980 and 1990. Gas well drilling rates are expected to increase from about 85 million feet in 1980 to 112 million by the late 1980s. The product of these two factors results in non-associated gas reserve additions of 12.8 tcf in 1980, dropping to 11.5 tcf by 1990. Separately, associated/dissolved reserve additions increase from 1.1 to 1.2 tcf during the 1980s. Thus, total gas additions are forecast at 13.9 tcf in 1980, and gradually fall to 12.7 tcf by 1990. These reserve addition levels are well below the production rates of 19 to 20 tcf per year experienced in the late 1970s. A continuing decline in proved reserves will result if production rates remain higher than future reserve additions.

The present administration is more likely to push for accelerated Federal leasing programs--particularly offshore--than was the Carter

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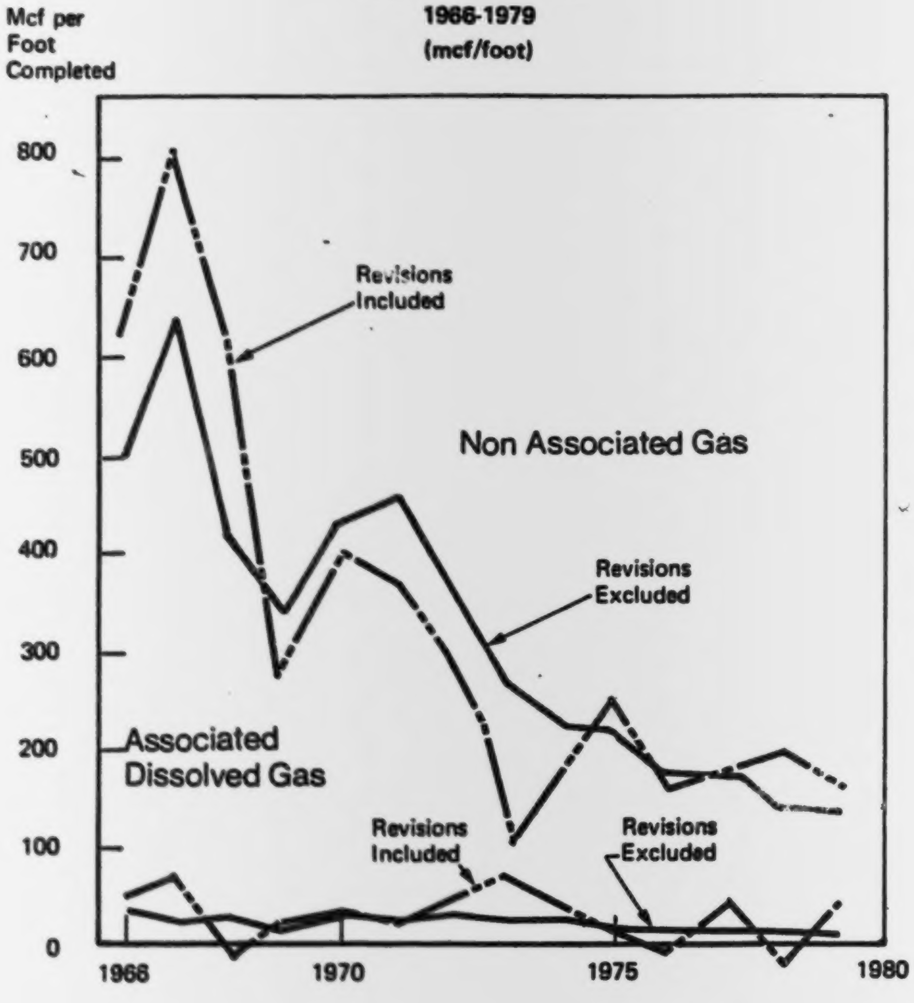
FIGURE III-3
NATURAL GAS FINDING RATES
LOWER 48 STATES
1966-1979
(mcf/foot)



Source: Jansen Associates, Inc.
American Gas Association/American Petroleum Institute, "Reserve of Crude Oil, Natural Gas Liquids and Natural Gas in the U.S. and Canada"
American Petroleum Institute, "Quarterly Review of Drilling Statistics"

Administration. Much has been said about the positive effects on discovery rates, particularly for oil, which such an accelerated program could provide. It is important to recognize, however, that the potential positive effect on gas during the 1980s is likely to be much less than for oil. The relatively higher costs of gas pipeline transportation with its necessary emphasis on scale economies means that gas finds in new offshore areas will tend to be commercial only if they are large and/or relatively near existing transport systems. The limited near-term commercial prospects of the small East Coast Baltimore Canyon gas discoveries, or the unlikely early commercial utilization of gas discoveries in offshore Alaskan waters, illustrate the likely slower commercialization of offshore gas than oil. We do not see accelerated leasing as having a major impact on conventional gas supply during this decade.

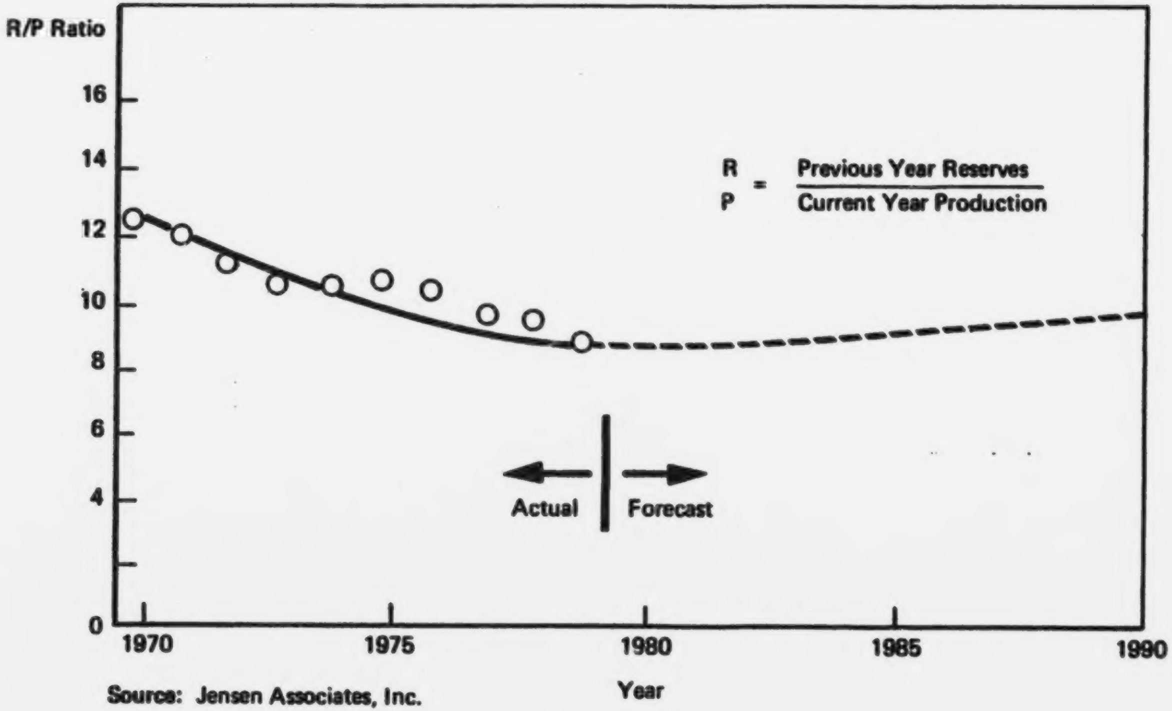
As stated earlier, gas production would have fallen more rapidly in recent years as proved reserves plunged, if the percentage of reserves taken as production each year had not been increasing. Increasing production rates relative to proved reserves generates a falling R/P ratio. Table III-3 provides an historic series of R/P ratios for L48 natural gas, using the annual year-end AGA reserves estimate and the following year's annual production rate. With the exception of a small increase in 1975, the R/P ratio has declined steadily throughout the 1970s. We believe this decline in the R/P ratio is near an end, as explained below.

So long as annual reserve additions are less than annual production rates, the average age of L48 gas reservoirs is increasing. Since pressure decline reservoirs are typically capable of delivering a smaller percentage of remaining reserves each year, older reservoirs tend to increase the average R/P ratio. At some point in time, a minimum R/P ratio (maximum average depletion rate) for all reservoirs must be reached. Its level and timing will depend upon economic and technological factors that control field development. Increasing reservoir age will eventually cause the R/P ratio to rise again as production rates decline relative to remaining reserves. Changes in these observed relationships between reserves and production are expected to be very gradual due to the inertia of more than 160,000 producing gas wells in the Lower 48 States.

We believe that the combined effects of increasing average age of reservoirs, slower growth in gas well drilling, probable decreasing emphasis on developmental drilling, increasing interest in tight gas sands, and extended gas well life provided by higher real prices will prevent the L48 R/P ratio from falling below 8.4 in the near term and cause the R/P ratio to increase very slowly in later years, as shown in Figure III-4. If the R/P ratio should move to lower levels as a result of near-term increases in production above our forecasts, the L48 will experience a more rapid, proved-reserves drawdown (for a given amount of reserve additions) and, consequently, in later years, production rates will drop to levels lower than we have forecast.

FIGURE III-4

NATURAL GAS RESERVES/PRODUCTION RATIO
LOWER 48 STATES



Source: Jensen Associates, Inc.

Examples which support our assumption that the past trend of falling R/P ratios will be reversed are found in two of the more prolific new gas plays in the Lower 48--the deep Tuscaloosa Trend and the Rocky Mountain Overthrust Belt. Both are expected to have R/P ratios considerably higher than the national average figure. In both areas, field development and/or production facility investment are too costly to justify close spacing of wells and high rates-of-take. Low permeabilities are an additional factor in the Overthrust Belt area. This means that more reserves will have to be proved up to obtain a given production rate than is currently necessary in the balance of the Lower 48.

Using the methodology and projections described above, we have forecast gas supply from Lower 48 conventional production to decline from the 1979 level of 19.7 tcf to 16.1 tcf in 1985 and 14.3 tcf in 1990. These figures are nearly identical to the National Research Council's Enhanced Supply scenario published in 1979[1] (after adjusting for inclusion of Alaskan gas by NRC) and are nearly six percent lower than the Department of Energy National Energy Plan II forecast which is endorsed by the American Gas Association. Our forecasts are 1.0 tcf higher than the Middle Oil Price Scenario (Medium Geology) supply case published in the Department of Energy 1980 Annual Report to Congress by the Energy Information Administration.

Canadian Gas Imports

Canada's present gas situation may be characterized as one of oversupply relative to that country's internal needs. From 1972-1979, Canada increased its proved natural gas reserves base 46 percent from 61 tcf to 88 tcf. During this same period, internal Canadian gas sales grew less rapidly (34 percent) than the reserves base and a restrictive export policy was designed to reduce the long-term flow of gas to the U.S. This period of "reserves building" resulted in a recognized surplus of available gas by the late 1970s.

In December 1979, Canada's National Energy Board, which approves all gas exports, reversed then existing policies designed to reduce gas exports and allowed the first significant increases in Canada's export levels since the early 1970s. Much of the newly-approved export volumes will move through the "pre-build" western and eastern legs of the Alaskan natural gas pipeline system, commencing in late 1981 and late 1982, respectively. The volumes of Canadian gas available to the L48 are projected to be 1.6 tcf by 1985 and then to decline slightly to 1.4 tcf by 1990 as development of markets in eastern Canada occurs, siphoning off the exportable gas surplus.

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[1] National Research Council, U.S. Energy Supply Prospects to 2010, 1979.

Despite the existing availability of surplus gas in Canada, 1980 gas exports to the U.S. plummeted 17 percent from 1979 levels, or from 1,001 bcf to 833 bcf. This decline was due to a number of interrelated factors, including economic recession effects in regions traditionally dependent on Canadian gas, an abundance of residual fuel oil and increased availability of L48 pipeline gas in those regions and, most importantly, an increase in the Canadian gas export price from $3.45/mcf at the beginning of 1980 to $4.47/mcf by April 1, 1980. Canada has announced a gas export pricing policy based on "value substitution" or price linkage with imported Canadian crude oil. However, the decline in Canadian gas export demand has ameliorated the implementation of this policy (i.e., a planned October 1980 export gas price increase was delayed until April 1, 1981, and was then posted at $4.94/mcf--below the possible crude oil-linked formula price). Over the long-term, and as traditional U.S. markets for Canadian gas strengthen, we expect Canadian gas export prices to escalate in step with world oil prices.

Mexican Gas Imports

Mexico's successes in gas and oil exploration in the past decade have resulted in that country's recent re-emergence as a major energy exporter. Mexican export gas began flowing in January 1980, at the rate of 300 million cubic feet per day (0.1 tcf/year) under a contract with a six-company U.S. consortium called Border Gas, Inc. Moreover, Jensen Associates projects U.S. imports of Mexican gas to increase to 0.4 tcf in 1985 and to reach 0.7 tcf by 1990.

Mexico's proved gas reserves are now estimated at over 80 tcf, with an additional 72 tcf of probable reserves. Most of Mexico's gas production is associated or co-produced with crude oil; hence, as Mexico has increased its crude production levels, gas production has similarly increased. For example, between 1978 and 1979, gas production increased 14 percent as a result of Mexico's attainment of crude oil production goals. And while Mexico is engaged in major efforts to reduce gas flaring through reinjection of gas into reservoirs and through utilization of gas domestically, we expect that the overall availability of gas coupled with the favorable economics of pipeline gas flows will mean increased gas exports to the U.S. by the mid 1980s. Existing pipeline facilities linking Mexico's gas producing areas to U.S. markets will need to be expanded to accommodate higher export levels; however, a large-diameter branch pipeline to the U.S. was originally envisioned as part of Mexico's developing gas grid network and we would anticipate construction of such a pipeline by the mid 1980s.

Although Mexico has announced an energy policy limiting gas exports to present levels, we expect that this posture will be ameliorated over the longer-term by general gas availability, gas export revenue considerations and physical limitations on utilizing the gas internally.

Mexico's current gas export price is tied directly to the prices of five key world export crudes with a contract provision permitting price parity with the Canadian export gas prices, should the latter be higher. In our forecast, we have assumed price parity with Canadian gas.

Liquefied Natural Gas (LNG) Imports

The optimistic outlook of the mid 1970s for large-scale movements of LNG to the U.S. by the early 1980s has gradually succumbed to the realities of major obstacles to such projects. Public concerns about the safety of LNG shipments, local objections to proposed terminal sites, government fears of gas over-dependence on foreign sources, doubts about the pipelines' needs for LNG supplemental gas, and U.S. government policy preferences for other supplemental gas sources have all played a part in reducing many LNG import proposals to little more than hollow possibilities. Of some 14 often-cited "probable and possible" U.S. LNG projects of the mid 1970s only two reached operational status (an expanded Distrigas project using facilities already in operation by 1972 and El Paso I), with a third project (Trunkline LNG) scheduled for start-up in August of 1981. All are based on Algerian-source gas.

The pricing of LNG has always been a difficult issue to resolve because of the massive investments required of both exporter and importer and the disparate government perspectives of LNG producing and consuming countries on the value of the gas to the user. Recent producing country pressure for f.o.b. gas pricing parity with crude oil has added to the difficulty of negotiating an LNG price acceptable to all parties.

LNG deliveries under the El Paso I project have been disrupted since April 1980 because of the gas pricing issue, although volumes under the much smaller Distrigas project have continued to flow. Despite the announced financial write-off by El Paso LNG of some $375 million of its LNG investment (after termination of U.S.-Algerian government pricing talks in February 1981), we believe there is a reasonable likelihood that deliveries--possibly at reduced levels--under this project will resume. The U.S. pipeline purchasers of El Paso I LNG are making efforts to negotiate directly with Algeria on the gas pricing issue and, in addition, the LNG tankers dedicated to this project have not yet been committed elsewhere. Thus, our 1985 supply forecast includes a contribution of 0.5 tcf from the El Paso, Distrigas and Trunkline projects.

Currently, four other LNG projects--Pac Indonesia, Pac Alaska, Nigeria Bonny, and Trinidad/Tobago--are in varying stages of planning or regulatory approval. In our estimates, we have assumed that additional LNG volumes of 0.2 tcf will come on stream in the latter half of the 1980s. We assume that any additional volumes, from these or other projects, will probably not be operational until after 1990.

Unconventional Production

Unconventional sources such as Devonian shales, coal seams, and tight formations are expected to make a small but measurable contribution to total gas supplies over the forecast period. The incentive of deregulation (as of November 1, 1979) for Devonian shale gas and coal-seam gas, along with allowable higher prices for tight gas, should stimulate production from these sources.

Devonian shales extend geographically over one-fourth of the North American continent, with significant deposits in the eastern United States. Miniscule production from this source occurs presently and improvements in exploration technology, allowing better definition of the shale areas and economically producible gas zones within Devonian shales, are expected to increase gas from this source in the latter half of the 1980s.

At least one proposal to tap coal-seam methane on a commercial basis has already been submitted to the Federal Energy Regulatory Commission and gas from this source is expected to make a small contribution to total unconventional production by 1985 and thereafter.

Interest in tight formation gas has been stimulated by the establishment of a special, high-cost incentive price in the NGPA. Some 150 different areas in the U.S. are under consideration for designation as tight gas producing areas. Hydraulic fracturing techniques are currently available to tap tight gas, but according to the National Petroleum Council[1], the technological improvements required to provide their widespread routine application will possibly take 9 to 17 years of intensive research and development effort. Thus, tight gas production from massive, relatively unproductive formations of the West is not expected to become substantial until after the 1980s. Forecasts of natural gas from currently producing tight sands areas are included in the conventional production figures of Table III-1.

Gas supplies from unconventional production are expected to reach a total of 0.1 tcf per year by 1985, and 0.3 tcf by 1990. Most of this will be tight formation gas from newly developing plays.

Another unconventional gas source is geopressured brine, but apparent production costs relative to other unconventional sources suggest that measurable production from this source is unlikely before the late 1990s.

Synthetic Natural Gas (SNG)

1. Liquid feedstocks

During the past two years, the greater availability of less expensive domestically-produced and pipeline imported natural gas has greatly reduced the demand for SNG reformed from naphthas and natural gas liquid products. In 1980, SNG supply dropped to 123 bcf. The 13 SNG plants in the U.S. are capable of producing over 300 bcf per year, indicating substantial idle capacity. We expect these plants to operate primarily as peak-shaving facilities until such time that all other less expensive baseload supplies are inadequate to meet demand. Consequently, our forecasts for the years 1985 and 1990 range from a peaking use level of about 0.1 tcf per year to an all-out rate approaching 0.4 tcf per year if demand exceeds supply of all other gas supplements, including Alaskan gas and LNG imports.

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[1] "Tight Gas Reservoirs-Part I," Unconventional Gas Sources, NPC, December 1980.

2. Coal gasification

The United States is poised on the threshold of developing high-Btu coalgas as a commercial gas supplement. Although the optimism of the mid 1970s, which envisioned production from five, large, pipeline-quality coal gasification projects by 1980 and an additional eleven plants by 1985, is considerably more guarded now, start-up in this decade of the nation's first commercial coalgas plant seems likely.

Several high-Btu synthetic-natural-gas-from-coal projects are under consideration. The Great Plains Gasification Associates proposal for an initial plant output in 1984 of 125 MMcfd of coalgas is most advanced and has received conditional Federal approval of plant financing loan guarantees. At least four other coalgas projects have sought loan guarantees through the Federal Synthetic Fuels Corporation, but the overall level of government financial support for coal gasification is uncertain at this time. Without such assistance, the substantial impediments of plant financing seem certain to further delay most coal gasification projects.

Our forecast for supplemental high-Btu coalgas includes a negligible contribution in 1985 and 0.2 tcf in 1990. This latter amount is equivalent to the output from two plants, each producing 250 MMcfd. In actuality, we expect several smaller-sized plants to be in place by the end of the 1980s.

Alaskan Pipeline Gas

Initial deliveries of natural gas from Prudhoe Bay through the Alaskan Natural Gas Transportation System are scheduled to occur in 1987. The forecast of 0.7 tcf in 1990 represents gas deliveries to the L48 States. It excludes deliveries to Alaskan users and transmission fuel.

IV. THE DEMAND FOR NATURAL GAS

Energy prices have been a major political and economic issue during much of the last decade. Policymakers have debated whether energy prices should be allowed to increase, who should reap the benefits of any price increases, and how the burden of any increases should be distributed. Proponents of a free market system have compromised their preferences to accommodate the social welfare concerns of the market regulators. As a consequence, our current energy pricing policies may be characterized as a complex system of partially regulated prices attempting to selectively emulate a market system, while still keeping consumer prices below market clearing levels. In the course of the decade, however, energy prices have risen substantially due to the changes in international petroleum markets.

These higher prices, in conjunction with both projected and realized fuel shortages, have altered the market for all energy. This is particularly true for natural gas. Conservation has reduced the requirements for all energy, while the gas shortages of the mid 1970s--which required the expansion of alternate fuel capabilities--have increased the fuel choice options of many commercial and industrial firms. In the next decade, continued conservation and intensified interfuel competition following deregulation of natural gas will have substantial influences on the demands for natural gas.

Our demand forecast is summarized in Table IV-1. Residential and commercial demands are expected to be relatively stable over the next decade as demand from new customers is offset by conservation from existing customers. Industrial demand is expected to increase substantially as the gap between gas and oil prices widens between now and 1985, when price controls end for a large part of gas supply. This growth is strongest in the premium process and smaller boiler fuel markets in the major natural gas producing areas where the imposition of Federal price controls has re-established natural gas as the preferred industrial fuel. Subsequent to deregulation, however, the industrial market for gas is expected to contract substantially as alternate fuels become more attractive. The electric power generation demand for gas is not expected to experience the same level of growth as the industrial sector prior to 1985, but will shrink similarly following the rapid escalation in prices expected in 1985.

Residential/Commercial Demand

The rapid growth in new gas customers that prevailed in the 1960s declined appreciably in the 1970s with the advent of interstate pipeline curtailments. The restrictions on new customer additions, particularly widespread in the East, effectively removed many gas utilities as a competitive force in the new construction market. At the same time, existing residential gas customers were adjusting their consumption downward in response to the real increases in their cost of natural gas.

TABLE IV-1

LOWER 48 STATES DEMAND FOR NATURAL GAS
1979-1990
(Quadrillion Btus)[a]

	Actual	Forecast		
	1979	1984	1987	1990
Residential	5.1	5.0	5.0	4.9
Commercial	2.8	2.7	2.7	2.7
Industrial	7.0	9.4	7.2	6.9
Power Generation	3.3	3.5	2.5	2.2
Other	2.9	2.3	2.1	2.0
Total Demand	21.1	22.9	19.5	18.7

[a] The gas data in this chapter are all in quadrillion Btus. The supply/demand balances in Chapters I, III and V are all in trillion cubic feet.

Source: Jensen Associates, Inc.
Gas Requirements Agency

The effect of conservation on residential gas demand has been less pronounced than in the commercial and industrial sectors, however, because the incentives to conserve have not been as strong. Subsequent to the OPEC oil price increases in 1973, the price of all energy began to rise. Higher wellhead prices allowed by the Federal Power Commission, rapid increases in unregulated intrastate wellhead prices, the addition of relatively expensive supplemental gases and lower interstate sales volumes all contributed to the increased city gate prices for gas. These price increases were not allocated evenly among all customer classes, as shown in Table IV-2. During this period, residential gas prices actually increased less than the average city gate price, while industrial prices increased substantially more than the average city gate cost. In effect, the increases in petroleum prices elevated the threshold price at which industrial users would begin to shift to alternate fuels--principally oil--thereby allowing them to bear a greater burden of gas costs. With continued increases in natural gas costs against a background of deteriorating real petroleum prices, the ability of regulatory agencies to augment this effective subsidization of residential consumers diminished. By 1978, further wellhead gas cost increases were necessarily reflected in residential prices, although the implicit city gate cost to residential customers remained lower than that for the industrial sector. The 48 percent real increase in residential gas prices did prompt residential consumers to reduce their average normalized consumption by 12.5 percent, but both commercial and industrial conservation levels were substantially higher.

Three subsequent events have re-established the potential for further subsidization of the residential sector: the passage of the incremental pricing provision in the Natural Gas Policy Act; the rapid escalation of world oil prices following the Iranian Revolution; and the decontrol of U.S. crude prices. The collective effect of these events has been to again raise the fuel switching threshold for industrial gas customers. However, while residential natural gas prices are not expected to increase to the same degree as will other sectors, the real cost of space heating will continue to rise, prompting further residential conservation. By 1985, we project residential conservation to reach 22 percent (on a per customer basis relative to 1972) and rise to 27 percent by 1990.

Implicit in this analysis is the expectation that a substantial number of new customers will be added to the gas distribution network. Although some of these new customers will be conversions from other fuels in existing structures, new construction represents the majority of these new attachments. Because these new units are much more efficient than the average existing house--not only in the space heating requirements of the building but also in the efficiency of the heating system--their addition reduces the average usage-per-customer.

With the removal of the state moratoriums on new customer additions, the gas market share in new construction is expected to rebound from the low levels of the 1970s. In the areas of the country where electricity is the principal competitor, however, gas is not expected to always return to

TABLE IV-2

U.S. AVERAGE NATURAL GAS PRICES
1972 - 1979
(1980 dollars per million Btu)

	1972	1979	1972-1979 Increase	1972-1979 % Increase
U.S. Average Wellhead Price ($ per mcf)	$0.34	$1.25	$0.91	272%
U.S. Average City Gate Price	0.78	1.98	1.20	154%
U.S. Average Residential Price	2.15	3.19	1.04	48%
U.S. Average Industrial Price	0.81	2.45	1.64	202%

Source: Jensen Associates, Inc.
U.S. Department of Energy
American Gas Association

its pre-shortage market share. Between 1972 and 1979, when residential gas prices rose 48 percent in real terms, residential electricity prices only increased 14 percent in real terms. The price of electricity relative to natural gas had actually fallen by 23 percent as illustrated in Table IV-3. This trend is expected to continue throughout the forecast period. Although gas prices remain well below electricity prices, the effective heating cost of gas approaches that of electricity by the end of the decade. As a consequence, although the number of new, gas space heating customers will increase annually, the gas market share in new construction is expected to decline.

The Northeast region, where oil is the principal competing space heating fuel, is an exception. The natural gas price advantage over distillate oil that developed with the Iranian revolution is expected to be maintained throughout the decade. Following deregulation in 1985, this competitive advantage is diminished so the high level of conversions from oil to gas in existing homes tapers off, but gas does continue to capture a higher share in the new construction market.

Despite the consumer preferences for natural gas, however, natural gas distributors may become somewhat cautious about new residential connections. As gas costs continue to rise, new homes will become increasingly efficient. With very low consumption levels, the rate of return on the investment in new mains required to attach new customers may decline sufficiently to make the investment unattractive. This could be accentuated with an inverted marginal cost rate structure where negative rates of return on the residential rate base are possible. Under these circumstances, while natural gas demands would be lower than shown in Table IV-4, the effect would likely be small due to the low consumption levels in these new units.

The commercial sector's consumption patterns are more varied than those in the residential sector, but the basic changes are quite similar. Commercial conservation has been slightly higher because the incentives were greater. Absent the subsidies reaped by the residential sector, and frequently facing higher rates of return on conservation investments, the commercial sector responded more quickly to rising gas prices. However, the ultimate potential conservation in this sector is lower than the potential in the residential sector--due largely to the smaller surface areas per unit of volume in commercial buildings. For this reason, commercial consumption-per-customer is forecast to decline at a lower rate than projected for the residential sector.

The net effect of the residential and commercial customer growth and conservation are shown in Table IV-4. Overall, residential demand is projected to increase (due in large part to a substantial number of oil to gas conversions) through 1985, and then decline as conservation more than offsets the demand of new customers. For the commercial sector, demand is expected to be relatively stable throughout the forecast period.

TABLE IV-3

U.S. AVERAGE RESIDENTIAL ENERGY COSTS
(1980 dollars per million Btu)

	1972	1979	Percent Change
Gas	$ 2.15	$ 3.19	48%
Electricity	$12.15	$13.88	14%
Relative Prices (Ratio of Electricity to Gas Price)	5.65	4.35	(23%)

Source: Jensen Associates, Inc.
American Gas Association
Edison Electric Institute
U.S. Bureau of Labor Statistics

TABLE IV-4

RESIDENTIAL AND COMMERCIAL GAS DEMAND
1979 - 1990
(Trillion Btu)

	1979		Forecast		
	Actual	Normalized	1984	1987	1990
Residential	5,131	4,834	4,987	4,963	4,904
Commercial	2,760	2,606	2,679	2,686	2,682
Total	7,891	7,440	7,666	7,166	7,586

Source: Jensen Associates, Inc.
Gas Requirements Agency

Industrial Demands for Natural Gas

The increase in delivered price of industrial natural gas during the latter half of the 1970s (see Table IV-2) had two major effects on the markets for gas--it provided an incentive for industrial firms to conserve by improving their energy efficiency, and it reduced the industrial demand for gas in selected applications when other fuels became the lowest cost source of heat. The net effect of these two changes was to substantially shrink the overall demand for gas, so that the chronically short market of 1976 became a relatively balanced market by 1978.

The measurement of conservation is a complex exercise, in part because it has more than one definition. From an engineering viewpoint, conservation is the reduction in fuel use required to produce a particular product --either because of improved operating procedures or technological change. This is basically what the U.S. Department of Energy compiles in its voluntary industrial conservation program for which conservation (relative to 1972) is estimated at 14 percent as of 1978. However, viewed from the broader perspective of total industrial output, conservation (measured as the reduction in fuel use per unit of output) had reached 24 percent by 1978. This significantly larger estimate suggests a shift in the types of products produced, with energy intensive products declining and other products increasing.

In addition to this shrinkage of the industrial market due to conservation, the actual and anticipated gas shortages, which began with the interstate pipeline curtailments in 1971, created a more price-sensitive fuel market as alternate fuel capability was added and expanded. The large segment of the industrial fuel market that is now dual-fueled only needs to examine operating cost differentials and product quality premiums when choosing fuels. An examination of the fuel switching and market share adjustments that occurred between 1972 and 1978 shows that oil captured three-quarters of the shift (see Table IV-5). Coal usage declined despite the Federal efforts to shift industrial boilers to coal. Although the purchase price of coal is generally less than oil, the higher investment and operating costs for coal (as well as the environmental difficulties associated with coal) appear to more than offset this initial advantage. Most increases in coal use by industry are expected to be associated with new facilities because conversion of gas-fired equipment to coal is generally impractical.

The Powerplant and Industrial Fuel Use Act (FUA), passed as part of the National Energy Act in 1978, represents an effort to shift industrial and electric utility boilers from gas and oil to coal by legislative fiat rather than through the creation of economic incentives. The industrial portion of the Act is summarized below.

New Major Fuel Burning Installations (MFBI)

New MFBI boilers would be prohibited from burning oil or natural gas. Non-boiler usage at new MFBIs would be subject

TABLE IV-5

TOTAL U.S. INDUSTRIAL FUEL SWITCHING
1978
(Billion cubic feet gas equivalents)
Base Year 1972

Fuel	Volumes	Percent
Residual Oil	+498	+47%
Distillate Oil	+305	+29%
Refinery Gas	+209	+20%
Other	+ 59	+ 6%
Coal	- 21	- 2%
Subtotal	+1050	+100%
Natural Gas	-1050	-100%
Net Fuel Switching Between Fuels	0	0

Source: Jensen Associates, Inc.
Gas Requirements Agency
U.S. Department of Energy

> to a case-by-case prohibition. Exemptions would be allowed for process use, cogeneration facilities, and for compliance with environmental laws.

Existing MFBIs

> Existing MFBIs using more than 300 mcf per day must switch from oil and natural gas if they are economically and technically capable.

In our analysis we have assumed that the FUA will be strictly applied to new boilers and no new MFBI boilers will be permitted to burn natural gas. The actual effect of the legislation on the existing industrial market hinges upon the executive interpretations of the rules for exemption, which include economic, technical and environmental criteria. In the near term, the impact of the legislation is expected to be limited by the small number of gas-coal fired boilers.

The incremental pricing provisions of the NGPA attempted to provide the economic incentives for industrial boiler conversions that were lacking in the coal conversion program. However, in order to limit load shifting to petroleum products, the FERC regulations set a ceiling on industrial gas prices equivalent to the prevailing high-sulfur residual fuel oil price. The effect of the ceiling is to limit the economic penalty ,incurred by industrial gas users who choose not to convert their existing facilities to coal.

The competitive position of natural gas has changed several times in the last decade. Industrial gas was delivered to users at near parity with residual fuel oil in the stable pre 1970s period. It was thus priced well below distillate. The first pipeline curtailments began in 1971. In late 1973 and early 1974, OPEC initiated the dramatic increases in international oil prices, thereby creating a significant competitive price advantage for natural gas. Between 1974 and 1978, however, oil prices declined in real terms while industrial gas prices continued a steady rise. In an effort to protect residential consumers from higher gas costs, utilities and regulatory commissions passed on a disproportionate share of the higher gas costs to industrial customers (as was shown in Table IV-2). By 1978, the price of industrial gas and residual fuel oil again approached parity.

The NGPA has institutionalized this practice of rate tilts for industrial boiler fuel customers. In fact, the industrial boiler fuel customer shifts from paying the lowest price for natural gas to paying prices occasionally above even the residential consumer. The disproportionate share of gas costs paid by industrial firms subject to incremental pricing effectively subsidizes other gas users. This subsidy is in addition to the subsidy inherent in the maintenance of wellhead price controls until 1985. As a consequence, natural gas regains the price advantage that prevailed from 1974 to 1978, particularly for the non-boiler fuel users of gas exempt from incremental pricing.

This competitive price advantage creates a substantial increase in demand for natural gas through 1984. In 1979 and 1980, the principal growth in gas demand was in the power generation sector for two reasons. Being exempt from incremental pricing, electric utilities found it quite attractive to substitute natural gas for oil. Secondly, the sluggish market for industrial gas (due to the slowly emerging recession) freed up volumes that could easily be absorbed into the electric utility market. For the balance of the period, the principal growth sector is expected to be industrial process gas users, particularly in the West South Central region (Texas, Louisiana, Oklahoma and Arkansas). With the NGPA-imposed price controls on intrastate gas (which previously had been unregulated), natural gas again becomes a very attractive fuel in the producing states.

Whether or not this demand actually materializes will depend on a number of non-price influences. Industrial users may be reluctant to attach new plants to natural gas systems without strong assurances of supply that may not be forthcoming. Secondly, following the substantial wellhead price increases expected to occur with deregulation in 1985, some industrial customers may chose to forego the price benefits in the short term. In any event, the rapid increase in deregulated gas prices in 1985 will have several effects. The subsidy effects of wellhead price controls will be largely eliminated, causing the industrial gas markets in the producing states to deteriorate. Secondly, the industrial gas customers that are exempt from incremental pricing will find their "subsidy" substantially diminished, thereby reducing the interstate industrial gas demand.

The Federal efforts to expand industrial utilization of coal have been largely resisted, not only because of the enormous capital costs of the conversion from gas or oil, but also because of local and Federal air quality standards. It is frequently suggested that an easing of the Clean Air Act would result in expanded use of coal at the expense of other fuels. A relaxation of environmental regulations would not affect our estimated gas demands from new boilers since we have already assumed a strict interpretation of the Fuel Use Act restrictions precluding gas consumption in new MFBI's. In existing facilities, a moderation of Federal environmental policy would be expected to increase industrial coal consumption. However, such a policy shift would not have a substantial impact on our industrial gas forecast.

There are two major causes for this apparent insensitivity to policy changes. The barriers to increased coal usage go beyond environmental regulations. Since converting existing gas and oil fired facilities to burn coal is largely technically infeasible, expanded coal use typically requires replacement of current equipment--an expensive proposition made more difficult by high capital costs, the competition for internal corporate funds and such mundane problems as inadequate land in many old industrial sites. In addition, because of the higher gas prices subsequent to deregulation, a large share of the industrial boiler market is already forecast to shift to alternate fuels. Since the boiler market is where additional coal use is expected to have its greatest impact--and our projections already reflect significantly diminished use of gas under boilers--our industrial gas demand forecasts are not particularly sensitive to changes in environmental regulations. Coal consumption does expand, but at the expense of non-gaseous fuels.

Our industrial forecast is summarized in Table IV-6. Total stationary industrial energy demand is expected to increase three percent per year to 1990, with most of the increase occurring by 1985. Industrial conservation will continue to temper industrial demand, particularly after 1985 with its large increases in industrial energy costs. Industrial demand for natural gas will peak in 1985 and then decline as the most price-sensitive markets switch to other fuels. As a consequence, industrial gas markets in 1990 will not be substantially different than those that existed in 1979.

Gas Demand in the Electric Utility Sector

The demand for gas for the generation of electricity in the 1980s will be characterized by the following general conditions:

- overall, use of gas as a fuel in electricity generation will generally decline vis-a-vis other fuels;
- the greatest potential demand for gas in electricity generation will occur in the near term, with total potential demand generally declining annually through 1990;
- the demand for gas by electric utilities will, however, be constrained by the volumes of gas available for large boiler fuel uses--hence, unsatisfied gas demand will exist among electric utilities prior to deregulation;
- unsatisfied gas demand in the electric utility sector will be met primarily by oil, since generating facilities based on other fuels such as coal, uranium, and hydropower will already be operating at or near their functional upper limits.

In the 1970s, many electric utilities accustomed to using gas for power generation were forced by the onset of gas curtailments to turn to alternative generating fuels. In 1970, gas demand by electric utilities was 3.9 tcf and by 1977 had dropped to 3.2 tcf. With the return of gas availability to the large boiler fuel market, gas consumption for electricity generation had increased and in 1979, electric utilities consumed 3.3 tcf of gas. For 1980, we expect that gas demand from electric utilities (unconstrained by supply) will have risen even more--to approximately 3.7 tcf--and then begin declining over the rest of the decade.

TABLE IV-6

INDUSTRIAL NATURAL GAS DEMAND
1979 - 1990
(Trillion Btu)

	Actual	Forecast		
	1979	1984	1987[a]	1990
Demand	6,973	9,410	7,166	6,949
Expected Deliveries	6,973	7,068	7,166	6,949[b]
Deliveries as a Percent of Demand	100%	75%	100%	100%

[a] The 1987 and 1990 demand forecast is based on a cleared market for natural gas.

[b] Includes Alaskan volumes.

Source: Jensen Associates, Inc.
Gas Requirements Agency

The reason for the longer-term decline in the role of gas as an electricity generating fuel is that gas (and oil) is increasingly being relegated to a peakload generating status from its previous role as a baseload generating fuel. In effect, generating facilities designed to burn gas and/or oil are being used less than facilities based on other fuels--namely coal and uranium. Thus, the share that gas and oil together hold of the generating fuels market is declining. However, within this joint gas/oil share of the generating fuels market, gas has recently been gaining share vis-a-vis oil. In 1977, gas and oil accounted for 31 percent of the 2,115 billion kilowatt hours generated in the Lower 48 States. In 1979, this share dropped to 28 percent. Looking only at gas versus oil generation, gas accounted in 1977 for 46 percent of the 655 billion kilowatt hours generated by oil and gas together. By 1979, gas and oil were together utilized to generate only 624 billion kilowatt hours of electricity, but gas accounted for 53 percent and oil the remainder--a reversal of their position in 1977.

Over the 1980-1990 forecast period, we expect that oil will continue to be regarded as a fuel of last resort in the power generaton sector. Similarly, gas will tend to share this characteristic, but the effects of rolled-in pricing on the gas side along with the existence of some low-priced, fixed gas contracts between some electric utilities and their gas suppliers, will make gas considerably more attractive than oil in those locales where it is available for power generation markets.

V. SUPPLY/DEMAND BALANCE

The increase in natural gas demand between now and 1985, prompted by the competitive price advantage of natural gas prior to deregulation, is not matched by an improvement in natural gas availability. As a consequence, a not inconsiderable gas shortfall is expected to develop, as shown in Table V-1. Since this shortfall is not due to a sudden decline in supply--as occurred in the interstate markets in the early 1970s with the advent of curtailments--but rather is due to a surge in demand, the gas industry can effectively manage the shortfall by carefully planning new load additions.

This excess demand collapses following the deregulation of wellhead prices when prices are free to rise to market clearing levels. In the post deregulation period, gas may be priced above the value of other fuels in some regions of the U.S., causing large users to switch away from gas and thereby reducing overall demand for gas. During the 1980-1984 period, there will be buyers who are willing to pay the regulated prices for gas, but cannot obtain it because supply is unable to keep up with demand.

The magnitude of the post January 1, 1985 adjustment in gas prices is dependent on the price of alternate fuels that will determine a market clearing price for gas. Based on our lower-bound oil scenario, the roll-in capacity (resulting from continued price controls on selected gas categories) in 1986 is estimated at approximately $13 billion. Supplemental gas premiums above the market clearing price absorb $2 billion and the balance represents the potential for flyup.

One of the key elements in establishing the level of flyup will be the price of residual oil because natural gas competes with residual oil in important marginal markets. High-priority markets typically develop rather slowly. Large increments of new supply can generally be quickly absorbed only in boiler fuel markets, and Alaskan gas is no exception. Thus, the initial deliveries of Alaskan gas are principally in low-priority uses--either directly or by displacement--where their major impact is to displace foreign oil. Gradually, the availability of the Alaskan natural gas allows high-valued process markets to expand their utilization of gas.

Since we expect petroleum product price spreads to be wider in the future, it would appear that refiners would have incentives to expand their yields of light products. Typically, such refinery upgrading would lead to reduced supplies of residual oil with attendant strengthening of residual oil prices--a scenario that would improve the market for natural gas. However, our analyses suggests that a substantial level of refinery investment will be necessary to keep residual oil yields no higher than they are presently due to the deteriorating crude slate available to U.S. refiners. Because of a petroleum product slate biased toward light products such as

TABLE V-1

SUPPLY AND DEMAND FOR U.S. NATURAL GAS
1980 - 1990
(Trillion cubic feet)

Potential Gas Demand	Estimated 1980	Forecast 1984	Forecast 1987	Forecast 1990
Residential	4.8	4.9	4.9	4.8
Commercial	2.6	2.6	2.6	2.6
Industrial	6.8	9.2	7.0	6.8
Power Generation	3.7	3.4	2.4	2.2
Other	2.6	2.3	2.1	2.0
Total Potential Demand	20.5	22.4	19.0	18.4
Expected Gas Supply				
Total Supply (Excluding Alaska)	20.5	19.2	18.3	17.7
Shortfall				
Without Alaska	--	3.2	0.7	0.7
With Alaska	--	3.2	0	0

Source: Jensen Associates, Inc.
Gas Requirements Agency

gasoline, U.S. refiners generally prefer the light African crudes from Nigeria, Algeria or Libya--crudes that are not substantially different from domestic crudes.

These light crudes typically have very low residual fuel oil yields. However, world reserves of crude oil are increasingly biased toward heavy crudes that yield significantly higher outputs of residual oil. If residual fuel oil supplies remain high relative to the market, it tempers the degree of flyup. The essentially by-product residual oil produced will be priced as low as necessary to dispose of it, thereby softening natural gas prices. The 1979-1980 collapse of the residual fuel oil market in the Midwest is a good example. Excess supply of residual oil caused the price to drop substantially at a time when crude oil prices were rising. As a consequence, natural gas prices in some industrial markets relaxed in order to maintain market share in the face of a shrinking overall demand for energy due to the economic downturn that affected the Midwest so strongly. Such events are likely to occur again subsequent to 1985. Although our forecast suggests an essentially balanced market, sporadic market disorder (created by abrupt changes in economic activity, large increases in supply, etc.) may occasionally cause spot surpluses and shortages.

Comparison of our supply and demand forecasts indicates a gas surplus during all of 1980 and 1981, reaching a balance during 1982 and shortfalls in 1983 and 1984. Then, following market adjustments to large gas price increases which occur in 1985, we find a continuing balance of supply and demand through 1990. Figure V-1 summarizes these changes in gas market balances for the years 1980, 1984, 1987 and 1990. This graph shows that in 1980, a total gas supply surplus of about one-half tcf existed and that this situation is expected to change to a shortfall of over 3 tcf by 1984. Following the 1985 gas price increases from decontrol, supply and demand will be essentially in balance.

The Impact of Early Deregulation

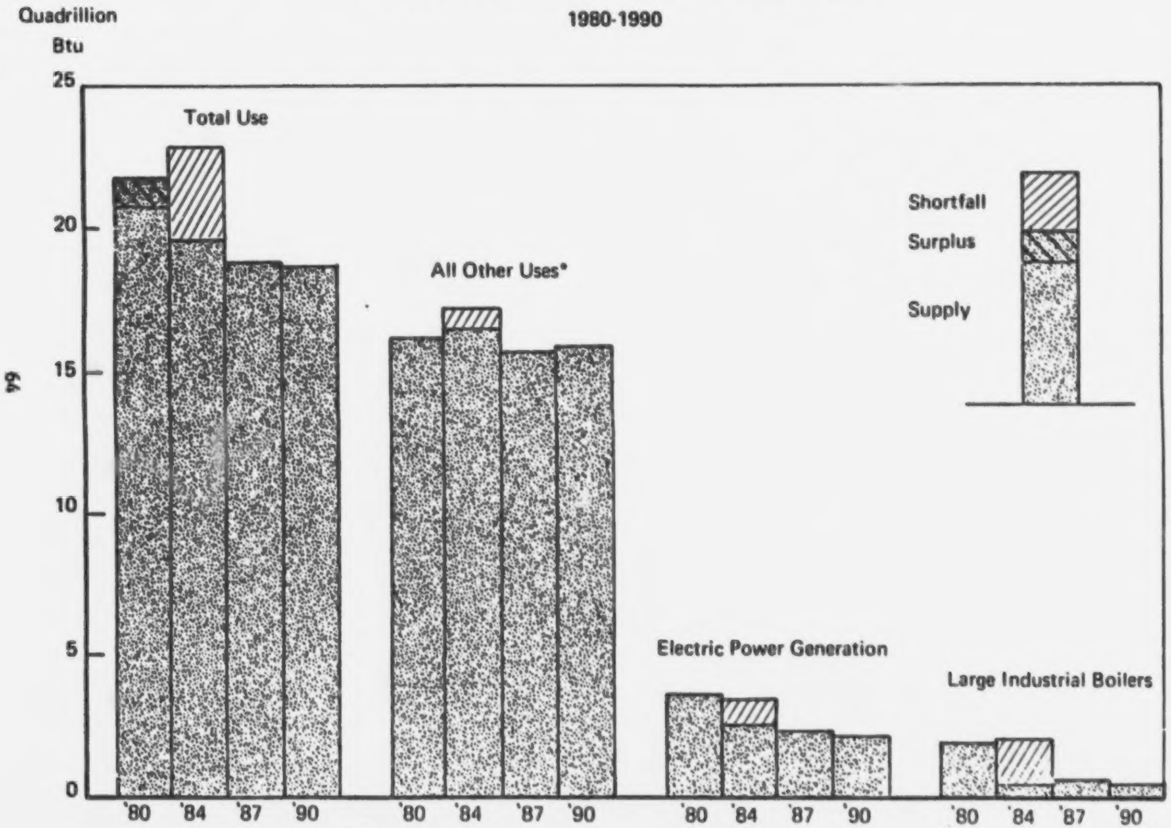
The election of Ronald Reagan, together with a Republican Senate in November 1980, has signalled a conservative shift in American politics. Reagan's economic advisers strongly support private sector investment and economic activity under the stimulus of market forces. In oil and gas, the emphasis on supply-side economics quickly translates into deregulation. Deregulation of crude oil was quickly accomplished in January 1981 by Presidential order; an accelerated timetable for new natural gas deregulation or full deregulation would require Congressional action, but may well be proposed by the Administration. The analysis in this report is largely based on an assumption of the continuation of the Natural Gas Policy Act of 1978, which provides for new gas deregulation in 1985. The major question which naturally follows is, "What would be the effect on markets for Alaskan natural gas?"

We have not examined early deregulation in detail and therefore can only speculate about its possible effects on Alaskan gas markets. We do

FIGURE V-1

GAS SUPPLY/DEMAND BALANCES BY USER TYPES

1980-1990



*Includes residential, commercial, industrial (except large boilers) and other.

Source: Jensen Associates, Inc.

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not share the view that immediate gas price deregulation would so stimulate the supply side that it would obviate the need for supplementary sources such as Alaska. We are persuaded that the impact of early deregulation would be much greater on market ordering and on demand than it would be on supply.

Higher oil and gas prices and the prospects for scheduled deregulation have already provided a powerful incentive for drilling activity. Both oil and gas well completion footage have increased by more than 40 percent in the past three years, gas footage nearly quadrupling and oil footage nearly doubling over the decade. The limitations imposed by leasing rates, geophysical crews, drilling rigs, and most importantly, evolving ideas for new drilling prospects serve to restrict the rate at which acceleration of the drilling incentive can produce concrete discovery results. Experience suggests that as drilling activity rises too rapidly, the yield--mcf discovered per foot drilled--may fall to offset the activity increase. Thus, although we would expect to see some supply improvement from immediate deregulation, we would not expect it to be large.

On the other hand, our projection of excess demand for gas is largely dependent on maintaining the disparity between price-controlled gas and international oil prices. Clearly, deregulation would permit gas, oil and coal markets to balance themselves more evenly over the 1981-1985 period, providing a more orderly market in the process. This would, presumably, eliminate much of the excess gas demand. The greatest concern about early new or full gas deregulation is its potential effect on roll-in capacity and the ability to subsidize the early entry of Alaskan gas into Lower 48 markets. In our lower-bound oil price forecast case, Alaskan gas is priced above market clearing levels in the early years and requires roll-in to enable it to compete in the marketplace. An acceleration of new gas deregulation would not significantly alter the relationship between clearing prices and the average price of old regulated gas, and thus--in our view--would not substantially change the extent of roll-in. It would clearly have an effect on the way in which flyup occurs.

Full deregulation, however, would permit all gas to rise to contractually-determined--as distinct from regulatory-determined--price levels. To the extent that indefinite pricing provisions exist in old gas contracts--and much of the old gas in 1987 will be produced from reserves discovered since 1973 where such clauses are common--prices could rise to eliminate a substantial portion of roll-in capacity. There is no guarantee that roll-in capacity would disappear entirely since many contracts have pricing provisions which would prevent their tracking deregulated prices directly. But to the extent that the roll-in capacity which would otherwise serve to cross-subsidize the Alaskan gas is substantially diminished by full deregulation, other means of accommodating the Alaskan price might be utilized. These could include such things as variations in rate design, greater use of market risk clauses or netback pricing approaches. Netback pricing, which is common in a deregulated market economy, sets the delivered price equal to the market clearing level and permits the wellhead price to vary as necessary within the terms of the contract. For crude prices higher than the lower-bound case--such as, for example, our least unlikely case--the issue disappears since Alaskan gas quickly becomes competitive in its own right without the need for roll-in.

THE MARKETABILITY OF ALASKAN NATURAL GAS

A Summary for Congressional Hearings
by Jensen Associates, Inc.

In our studies of the marketability of Alaskan natural gas, we at Jensen Associates, Inc. have concluded that commercial markets will exist for gas from this project throughout the project's lifetime. Despite an acceleration of drilling activity, the long-term prospect is for a decline in natural gas production from traditional Lower 48 sources. As a result, supplements--such as Alaskan gas from this project, imports, and unconventional sources--will be required if the gas industry is to avoid a substantial loss in its traditional contribution to U.S. energy supply. Efforts to diversify energy sources in the U.S. away from oil are continuing, but we believe that on the margin imported oil will remain the chief competitor for natural gas well into the 1990s. We believe that world crude oil prices will inevitably rise in real terms over the course of the project, although the timing and extent of individual price increases will almost inevitably be erratic. For the next year or so prices, indeed, are more likley to fall than to rise. There is thus a likelihood that the initial price of Alaskan gas will be above the price at which gas markets will clear against oil, requiring some price accommodation for Alaskan gas to assure that it can compete. Congress provided just such a transitional pricing approach in allowing roll-in treatment for Alaskan gas under the Natural Gas Policy Act of 1978.

But if for some reason roll-in is not available, changes in the "front end loading" pricing pattern for Alaskan gas, such as netback pricing at the wellhead and levelized rate design, provide similar price accommodation. We thus believe that a market does exist, and that some mechanism can be utilized to assure that prices can be competitive in the early years.

The year 1981 has proved to be a year of extraordinary upheaval in U.S. and world energy markets. The natural gas shortage which plagued the U.S. in the early and mid-1970s has given way to a "gas bubble" which has persisted for so long that many now call it simply a "gas glut." World petroleum markets are in even greater turmoil; the oil price increases which were set in motion by the Iranian revolution in late 1978 have had a major impact on world oil demand. Only a few years ago, many wondered whether OPEC would be willing or able to produce an expected requirement of more than 40 million barrels per day by the mid-1980s. Two years ago, at this time, demand for OPEC oil exceeded 31 million barrels per day and was threatening OPEC's allowable production capacity; at the moment, net demand for OPEC production has dropped to 20 million barrels per day. World oil prices, which rose more than two and one half times in the chaotic markets of 1978 to 1980, are now falling--not only in real terms, but in current dollar prices, as well--as OPEC price hawks are forced to discount to retain some semblance of an oil market share. The changes have been sudden. Even the formal report submitted with this testimony, and which is dated only three months ago, foresaw a drop in OPEC demand this year to 23 million barrels per day from the then statistical base of 25 million barrels per day; it is now 3 million barrels per day lower than that. In this kind of market, it is tempting to conclude that there is enough natural gas, enough oil, and that the energy problem is almost a thing of the past.

The gas from Alaska, however, is not expected to flow until the winter of 1986/1987, so that the markets which concern us are not those of October 1981, but those of 1987 and the years following. A simple observation can illustrate the rapidity with which energy markets can change and place marketability issues in a new context. South Louisiana is a major contributor to today's gas bubble because of the prolific production rates possible with its reserves. If one were to make the simplifying assumptions that depletion rates in the area could be maintained at current levels and that no new discoveries would be made, the gas from South Louisiana would be virtually all gone by the time the Alaskan gas comes on line. South Louisiana is the largest gas producing area in the U.S., representing 26 percent of Lower 48 reserves and 35 percent of Lower 48 production. We do not mean to suggest that these assumptions are realistic, but only to show how greatly energy markets will have changed by that time.

Our evaluation places the marketability question in three broad contexts--the outlook for natural gas demand, the outlook for supply, and the role of price. Estimates of future natural gas requirements have been steadily reduced as observers have become aware of the extent to which natural gas demand is responsive to price. But although target requirements are down, we believe the long-term outlook for Lower 48 production is also down despite current optimistic trends in gas well drilling activity. Thus supplements will increasingly be needed to satisfy the projected requirements.

The underlying driving force which will be most influential in creating increased demand for gas in general, and a market for Alaskan supplies in particular, is an increase in real prices for world oil. A major portion of existing U.S. industrial and power generation plant capacity is designed for oil and/or gas firing and is not readily convertible to coal or other fuels. Thus, rising oil prices quickly shift demand to gas. In addition, prices of most supplementary gas supplies--such as Canadian, Mexican or LNG--are being linked to oil. Rising real prices for oil thus make Alaskan gas--without such linkage--increasingly attractive relative to alternate supplies.

The Outlook For Natural Gas Demand

If the NGPA were to go to term in its present form, we foresee two distinct periods of gas demand behavior during the 1980s. Prior to new gas price decontrol in 1985, gas demand will grow in the price-sensitive industrial and power generation sectors as the price gap between gas and fuel oils remains. By 1983 this increasing demand will have absorbed the current gas supply surplus and exceeded available supply, creating an imbalance period lasting until decontrol of new gas prices in 1985. Following decontrol, gas prices will rise rapidly relative to other fuels causing some loss of demand by industrial and electric utility users. Price will then bring supply and demand into balance for the rest of the decade and beyond.

During the entire decade, residential and commercial demands will remain essentially constant. Industrial and power generation demands will increase significantly through 1984. Following gas price decontrol, the latter two price-sensitive demands will drop sharply as they switch to cheaper fuels.

Our demand estimates are shown in Table I. If the deregulation provisions of NGPA are modified by Congress through some form of accelerated deregulation, the impact on the market would be to clear it earlier, eliminating the excess demand we foresee prior to 1985. The volume effects would tend to be concentrated in those same markets which would not be served under conditions of excess demand--industrial boiler requirements and dual-fueled power generation demand.

The Outlook For Gas Supply

Natural gas reserve additions in the Lower 48 States last exceeded production in 1967 and, as a result, proved reserve levels in the U.S. have steadily declined. The industry has been able to effect a partial offset to this sharp decline in proved reserves by steady increases in the rate-of-take from remaining reserves. This has occurred both as a result of increased emphasis on in-fill and other relatively low-risk development drilling activity, as well as from the fact that the major Gulf Coast producing region is geologically capable of quite rapid depletion rates.

We do not believe that the increased drilling rates which we foresee will be sufficient to offset the steady decline in gas reserves added per foot of drilling effort. Therefore, we expect a continued decline in Lower 48 proved reserves. In addition, because of the changes in regional

Table I

LOWER 48 STATE GAS DEMAND FORECAST SUMMARY

(Quadrillion Btu)

Sector	Estimated Consumption 1980	Forecast Demand 1984	1987	1990
Residential & Commercial	7.5	7.7	7.7	7.6
Industrial	7.1	9.4	7.2	6.9
Power Generation	3.6	3.5	2.5	2.2
Other	2.8	2.3	2.1	2.0
Total Demand	21.0	22.9	19.5	18.7

Source: Jensen Associates, Inc.
Gas Requirements Agency

patterns of discoveries and in the nature of drilling activity, we foresee that at some point, production rates as a percent of proved reserves will peak, causing production to fall more rapidly thereafter. Thus, supplementary sources of gas supply will increasingly be needed to compensate for declining Lower 48 production. We do not share the view that early price deregulation would so stimulate the supply side that it would obviate the need for supplementary sources such as Alaska. We believe the effects of early deregulation would be much greater on market ordering and on demand than it would be on supply.

Our forecast of Lower 48 State conventional production declines by 28 percent between 1980 and 1990. This is partially offset by an increase in supplemental supplies such as pipeline imports from Canada and Mexico, LNG imports, synthetics, Alaskan gas and unconventional production. The result is that total supply declines 11 percent during the decade, from 21.0 quads in 1980 to about 18.7 quads in 1990. Details of our supply forecasts are provided in Table II. Our gas supply/demand balance--under the assumption of continuation of NGPA as it stands--are shown in Figure I.

The Role of Price

Perhaps the single most important element in competitive fuel price formation during the 1980s will be the outlook for international oil prices. Rising real prices for OPEC oil supplies have two important effects on oil and gas competition. First, rising oil prices tend to stimulate the demand for gas at the expense of oil--particularly in the price-sensitive dual-fuel market. But since prices of most supplementary

Table II

LOWER 48 STATES GAS SUPPLY FORECAST SUMMARY

(Quadrillion Btu)

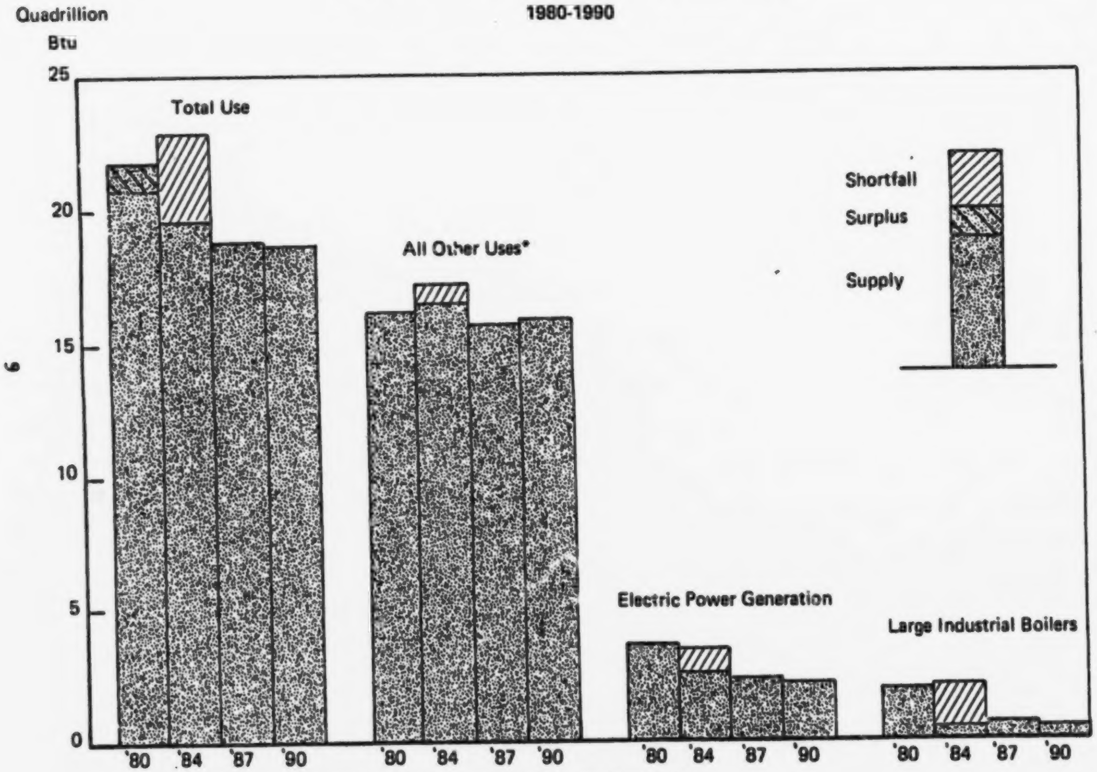
Source	Estimated 1980	Forecast 1984	Forecast 1987	Forecast 1990
Conventional Production	19.9	16.8	15.5	14.4
Unconventional Production	--	0.1	0.1	0.3
Imports	1.0	2.6	2.9	2.9
Alaskan North Slope	0	0	0.8	0.8
Synthetics	0.1	0.1	0.2	0.3
Total Supply	21.0	19.6	19.5	18.7

Source: Jensen Associates, Inc.
Department of Energy

Figure 1

GAS SUPPLY/DEMAND BALANCES BY USER TYPES

1980-1990



*Includes residential, commercial, industrial (except large boilers) and other.

Source: Jensen Associates, Inc.

supplies, such as LNG or overland imports, will increasingly be tied to international oil price levels, rising oil prices make these sources relatively less attractive by comparison with Alaskan gas. Thus, a rising oil price environment makes Alaskan gas increasingly competitive, not only with oil, but with most other supplementary gas sources as well.

The year 1981 has seen a marked shift in the outlook for world oil supplies and prices. The successful weathering by world oil markets of the Iraq-Iran crisis, together with unexpectedly high reductions in world oil--and OPEC oil--demand has forced most oil economists to moderate their projections. In our formal report we utilize a "lower bound" oil price projection to test the marketability of Alaskan gas. We believed at the time the report was written--and believe now--that the "lower bound" price projection is a conservative statement of oil price behavior over the decade. But with the events in world markets of the summer and fall of 1981, it is probably no longer appropriate to describe it as a "lower bound" case in the early years before Alaskan gas flows, since the turnaround in world oil demand may be extended beyond 1983. Our forecasts of long-term crude prices continue to reflect the expectation that price behavior during crisis will be a major element of future oil price formation.

From 1973 to 1981, prices of international oil to U.S. markets rose at an average rate of nearly 14 percent per year in real terms. This was not a classical steady growth curve, however, since virtually all of the increase was confined to two comparatively short periods--October 1973 to February 1974 during the Arab oil embargo, and again from December 1978 to

February 1980 precipitated by the Iranian revolution. There is thus compelling evidence that the dominant force in real price increases over the decade has been the panic buying which accompanied the crisis markets of 1973/1974 and 1978/1980 rather than any orderly price administration by OPEC. OPEC's principal role has been to resist the erosion of real oil prices during the periods between rises. A forecaster who ignored the crisis element would have been right nearly seventy percent of the time, but might have missed the action of markets during which nearly eighty percent of the price increase occurred. The crisis element in price formation arises when political disruption coincides with a high level of net demand on OPEC. The coincidence was there in 1973 and again in late 1978. Prices weathered one tight market in late 1976 without taking off since the element of political disruption was missing. Conversely, the onset of the Iraq-Iran war occurred while markets were softening and the assassination of Anwar Sadat occurred at the lowest level of net demand for OPEC oil in the last thirteen years.

The magnitude of the present drop in OPEC demand, and the anticipated return of Iraq and Iran to the market, have convinced many observers that tests of OPEC's willingness or ability to produce are a thing of the past. But current production levels are misleading in a world in which OPEC tends to absorb much of the energy downswing, and a combination of worldwide economic downturn and contraseasonal inventory liquidation has pushed OPEC demand to abnormally low levels. For example, current estimates of worldwide inventory liquidation range as high as two million barrels per day during a season when inventories are normally expected to increase by two million barrels per day--a four million barrel per day swing. In our view, net demand on OPEC oil will increase again after the completion of the current inventory liquidation, and a resumption in growth of economic activity in the OECD, perhaps during 1983. With the limited prospects for any significant increase in OPEC's available capacity over the decade, we believe that capacity--and price--will be tested again even without a new major disruption in the Middle East.

In our formal report, we have utilized two forecasts of oil prices. One of these--our least unlikely case--was based on the expectation that international oil price formation would operate very much during the 1980s as it has during the 1970s. The dominant feature of recent international oil price development has been a sporadic political or military crisis in the Middle East; this has generated panic buying in the marketplace and a rapid escalation in oil prices. These prices subsequently decline in real terms as the disruption passes and world economic activity reacts to the sharp dislocations in pricing. For our least unlikely case, we arbitrarily assumed that a disruption would occur in 1984 and the pricing pattern both during and after the disruption would be similar to 1973/1974 and 1979/1980.

For purposes of our market analysis, however, we have assumed that such a forecast, with its disruptive price pattern, would not present a credible test of the marketability of Alaskan gas. Therefore, we have utilized instead a "lower-bound" price case which assumes declining real prices through the end of 1982 with a turnaround thereafter. From the low point starting in 1983, we anticipate a three percent per year increase, the rate at which we believe the OPEC long-term strategy pricing formula would operate if it is adopted by the end of 1982. The net effect of this price forecast is a real price increase of 1.8 percent per year from 1980 to 1987.

It is this projection which we have utilized in this report to test Alaskan gas marketability. The basic crude projection has been adjusted for transportation and other crude oil sources, and then converted into a price series for the refiners' acquisition cost of crude oil. This series has been used in turn to develop both distillate and residual fuel oil prices by region.

In the Natural Gas Policy Act, Congress granted Alaskan gas the right to rolled-in treatment for ratemaking purposes. This was designed to permit price-controlled old gas (which will continue long after 1985 new gas deregulation) to cross-subsidize any portion of the price of Alaskan gas over and above market clearing price levels. In a high oil price scenario, Alaskan gas quickly becomes competitive on the margin, as real oil prices overtake the initially higher-priced Alaskan gas. In our least unlikely combination of oil and gas prices, Alaskan gas requires little roll-in treatment during the early years to be marketable.

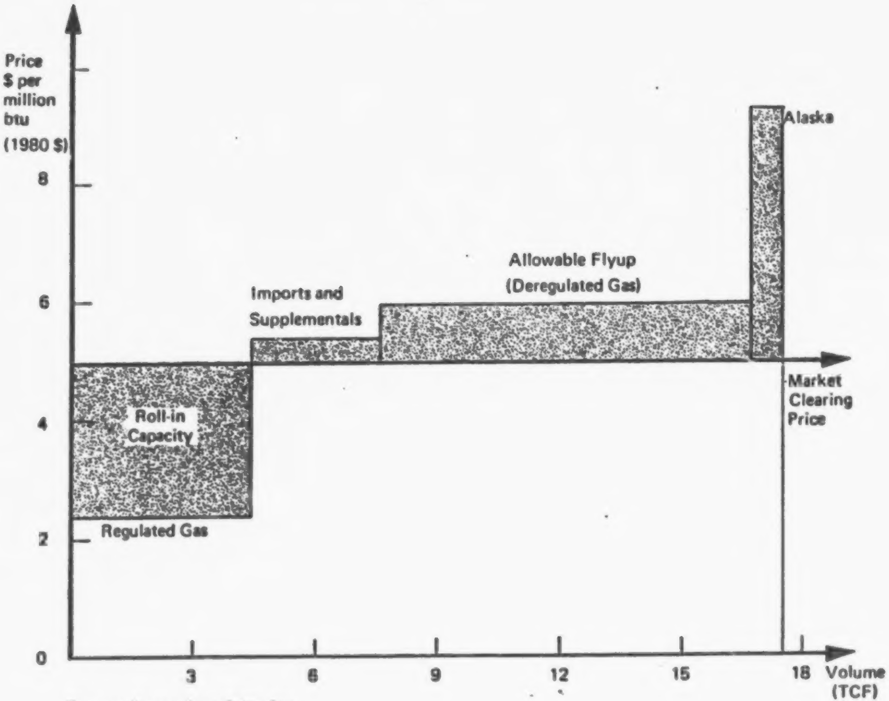
However, in our lower bound case, Alaskan gas must rely--in the early years, at least--on some form of price accommodation such as the rolled-in treatment which Congress granted it in the NGPA. We estimate that if the NGPA goes to term, the 1987 market will have 25 percent of total U.S. gas supply still regulated below the market clearing levels, amounting to a roll-in capacity of $11.7 billion. Other supplementary gas supplies, priced above clearing levels, will utilize a portion of this capacity, but most of it remains to accommodate the Alaskan gas and to provide a potential for "flyup"--the rapid market and contractual escalation of deregulated new gas prices in 1985. Figure II illustrates the roll-in capacity numbers for 1987 when the relative prices of Alaskan gas and oil are least favorable.

The extent to which this roll-in capacity will actually be available depends on world oil price levels, the nature of gas price regulation between now and 1985, and the extent to which the gas pipeline industry, through its contracting practices, may lock in enough deregulated gas price escalation to absorb part of this capacity. We have assumed that the individual reselling pipelines would be in the best position to coordinate their gas contracting practices, their markets, and the rolled-in accommodation of Alaskan gas. Indeed, we have seen evidence of just this sort of integrated supply/market planning taking place, and as a result our report concludes that the roll-in capacity will be there for the lower bound case.

The recent debate over early gas deregulation, the turbulence in world oil markets and the response of OPEC, raise legitimate questions as to what would happen to the markets for Alaskan gas if the roll-in capacity is not available as Congress intended. It is important to recognize that the Alaskan price projections utilized throughout our report and illustrated in Figure II are "front-end loaded." The cost-of-service ratemaking approach utilized by U.S. utilities attempts to recover operating costs and a return on undepreciated plant investment in the rates

Figure II

1987 ROLL-IN CAPACITY OF U.S. NATURAL GAS MARKETS
(Based on Lower Bound Crude Price
and
Upper Bound Alaskan Price)



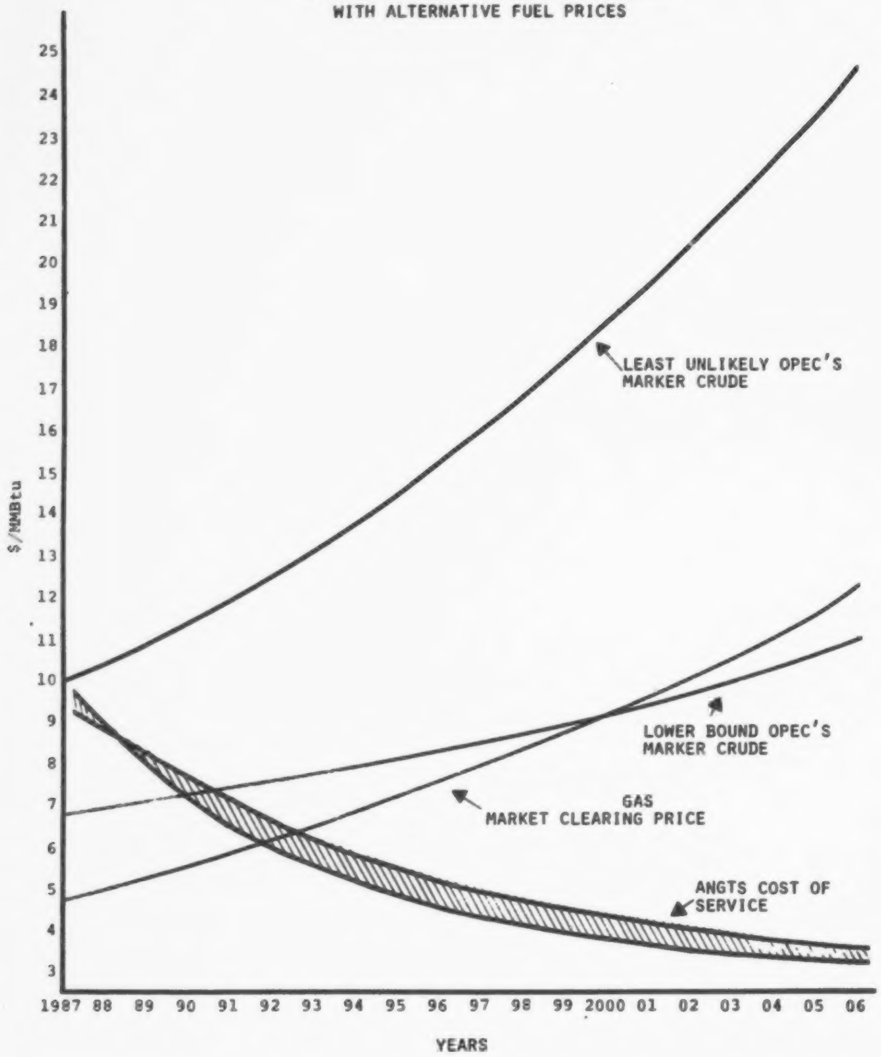
Source: Jensen Associates, Inc.

charged to customers. This makes rates, for a major project such as this one, highest at start-up and declining thereafter as the plant investment is depreciated. In addition, the Congressional preference for price regulation of Alaskan gas at the wellhead represents an abandonment of the more customary "netback" approach to new project wellhead pricing where producers charge no more than what the market will permit during early years, in return for greater pricing flexibility later on. This approach prices gas higher in the early years then it would be priced under the customary netback approach and is thus also front end loaded. By adopting approaches which have the effect of shifting to a more level rate structure over the life of the project, the sponsors have much more flexibility to accommodate those market uncertainties than the schedule of prices which we have utilized in this report might suggest. No one that we know is seriously suggesting that OPEC oil could continue to be cheaper than Alaskan gas over any significant period of project life.

In summary, we believe that a commercial market for Alaskan gas will exist in 1987. Its volumes will be required along with other supplements if natural gas is not to play a significantly reduced role in meeting future U.S. energy demands. In our least unlikely world oil price scenario, Alaskan gas will increasingly be competitive with alternate gas supplies, which will be largely linked to oil. Lower oil price scenarios, such as the lower bound estimate which we have utilized in our report, will require some price accommodation in the early years. Congress has provided for the use of roll-in capacity to help Alaskan gas through the early start-up years, but other pricing approaches such as wellhead netback pricing and changes in pipeline rate design can also be utilized to accommodate the market.

APPENDIX F

COMPARISON OF ANGTS COST OF SERVICE WITH ALTERNATIVE FUEL PRICES



APPENDIX G

Net National Economic Benefits of the Alaska Natural Gas Transportation System

Introduction

The Alaska Natural Gas Transportation System (ANGTS) is the largest privately financed project ever to be considered. Its completion will generate enormous net national benefits. The present value of the Alaskan gas that ANGTS will bring to the United States is likely to be between $90 and $140 billion.* The total present cost of delivering this gas (including the wellhead cost of the gas) is approximately $50 billion over the 25-year project life. Accordingly, the present value of the net benefits of ANGTS is between $40 and $90 billion for all U.S. parties associated with the project. For our base case, we use the median gas value of $110 billion, which yields a median NNEB of $60 billion. All of the above values are in January 1980 dollars, discounted in real terms at 3 percent to mid-1981.

The parties associated with ANGTS include the consumers, the state and federal governments, and the project investors. The benefits will provide the project investors with returns sufficient to attract their respective investments. Additionally, the governments will receive benefits in the form of tax receipts.

In September 1977, President Carter rendered a decision that the Northwest Alaskan Pipeline Company be designated to construct and operate those portions of the ANGTS within the State of Alaska.** Because project cost estimates have changed substantially since the Decision, the project sponsors must demonstrate that the project is still in the public interest.*

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* These values are the mode and expected value for the gas value, respectively.

** Executive Office of the President, Energy Policy and Planning, Decision and Report to Congress on the Alaska Natural Gas Transportation System (September 1977). Hereinafter cited as the Decision. Northwest Alaskan Pipeline Company is the operating partner for the consortium (Alaskan Northwest Natural Gas Transportation Company) presently sponsoring the Alaskan segment of ANGTS.

Accordingly, Northwest Alaskan Pipeline Company asked Resource Planning Associates, Inc. (RPA), to independently assess the net national economic benefits (NNEB) of ANGTS. Northwest Alaskan Pipeline Company provided the project cost assumptions for the analysis. RPA conducted the analysis of the NNEB and we present our findings in this report. First, however, we define the NNEB and explain the report organization.

DEFINITION OF NET NATIONAL ECONOMIC BENEFITS

Net national economic benefits of a project are simply the economic costs subtracted from the economic benefits. As shown in Exhibit 1, the total costs of the delivered gas are the sum of two major cost categories: the project capital costs and the project annual costs. The latter consist mainly of the price of the gas at the wellhead. The gas is valued at the wellhead for the annual cost calculation. The benefits of the gas derive from the market value of the gas.**

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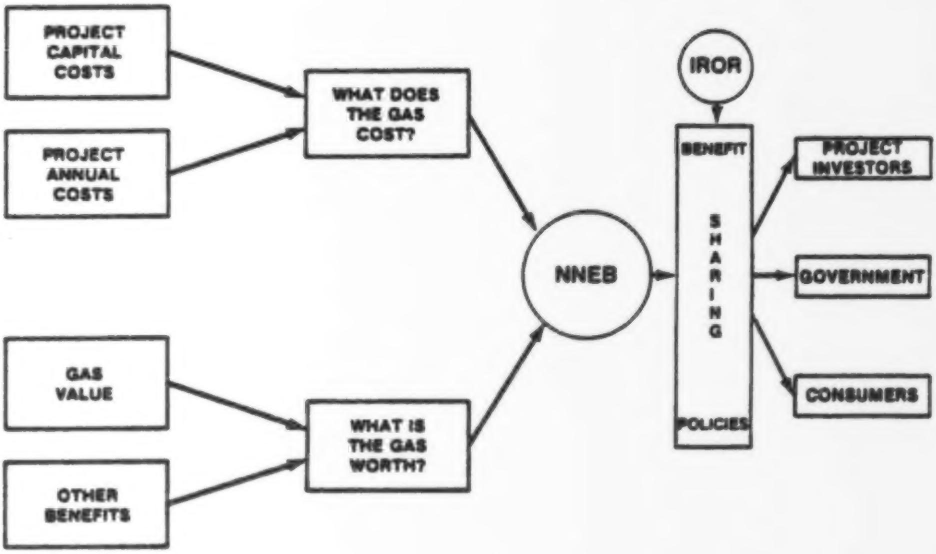
* Order No. 31, "Order Setting Values for the Incentive Rate of Return, Establishing Inflation Adjustment and Change in Scope Procedures, and Determining Applicable Tariff Provisions," Docket No. RM78-12 (June 8, 1979), p. 53.

** Our evaluation excludes indirect benefits, such as increased energy independence, improved balance of payments, and more jobs. Consequently, our estimate of the value of the gas is conservative.

Exhibit 1

NNEB OVERVIEW


PROJECT CAPITAL COSTS
PROJECT ANNUAL COSTS
WHAT DOES THE GAS COST?
GAS VALUE
OTHER BENEFITS
WHAT IS THE GAS WORTH?
NNEB
IROR
BENEFIT
SHARING
POLICIES
PROJECT INVESTORS
GOVERNMENT
CONSUMERS

The time patterns for the costs and benefits of ANGTS are significantly different. The capital costs are incurred prior to gas flow, whereas the benefits accrue over a minimum 25-year project life. Therefore, the NNEB is largely a matter of society's time value of capital. In our analysis, we used a 3 percent real discount rate for the base case assumption. With an inflation rate assumption of 11 percent, the annual discount rate is 14 percent.

As shown in Exhibit 1, the NNEB is the total value available for sharing among project investors, government, participants, and consumers. The relative shares are determined by project costs, market factors, laws and regulations (such as the Federal Energy Regulatory Commission's incentive rate of return mechanism), and tax policies.

REPORT ORGANIZATION

This report is divided into three parts. In Chapter 1, we present the value of the gas to be delivered by ANGTS. We used an approach that combines the judgment of 28 nationally recognized energy experts to show that the value of the gas is large under all reasonable circumstances. Chapter 2 presents the capital and annual costs for the project, as provided by Northwest Alaskan Pipeline Company. Chapter 3 combines the results of Chapters 1 and 2; in it we elaborate on our definition of NNEB and examine the sensitivity of the base case to changes in several major assumptions. We also demonstrate that the NNEB is large under all reasonable circumstances.

1 THE VALUE OF ANGTS GAS

The value of the delivered Alaskan gas is a major determinant of the NNEB. It is also the most difficult factor to predict, due to its heavy dependence on highly uncertain future energy prices. Consequently, we devoted a major effort in the NNEB analysis to this area. This effort involved utilizing the judgments of a broad cross-section of nationally recognized energy experts.

We define the value of delivered Alaskan gas as the wholesale revenue it could command at the pipeline termini -- that is, at the Chicago and San Francisco region gateways* -- in an unregulated environment. This is equivalent to the wholesale cost of fuels that would be consumed in the absence of Alaskan gas, approximately adjusted for differences in the costs of local distribution and end-use utilization. In Chapter 3, we explain the use of gas value, thus defined, in calculating the NNEB.

To account for the high degree of uncertainty in the future value of Alaskan gas, we interviewed 28 nationally recognized experts on future energy prices. These interviews were conducted during the first quarter of 1981. These experts and their affiliations are listed in Exhibit 1.a. The combined results of our interviews are summarized as a probability distribution in Exhibit 1.b. On a levelized basis, the median gas value is $9.17 per million Btu in 1980 dollars. The expected value is $11.79 and the mode (most likely) is $7.50. The probability of a value less than $4.94 is 10 percent, as is the probability of a value greater than $18.32.

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* A small amount of Alaskan gas is also delivered within the State of Alaska. This is included in our definition of the value of ANGTS gas.

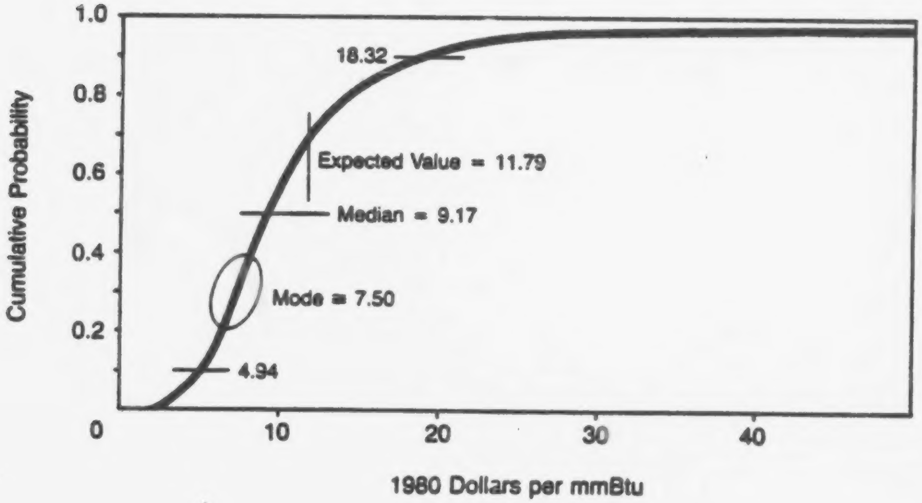
Exhibit 1.a

PARTICIPANTS IN ANALYSIS OF THE VALUE OF ALASKAN GAS

Expert	Affiliation
Alvin Alm	Harvard University
Michael Barron	Department of Energy
Kenneth Darrow	Gas Research Institute
John Ecklund	Central Intelligence Agency
Robert Fri	Energy Transition Corporation
J. Michael Gallagher	Bechtel
Dermot Gately	New York University
John Gault	Jensen Associates
Roger Glassey	University of California, Berkeley
Eugene Harless	SRI International
Patrick Henry	Booz, Allen, and Hamilton, Inc.
Charles Hitch	University of California, Berkeley
Larry Jacobsen	Federal Reserve Board
Michael Kennedy	University of Texas
John Lichtblau	Petroleum Industry Research Foundation, Inc.
Henry Linden	Gas Research Institute
Rene Males	Electric Power Research Institute
Ted Moran	Georgetown University
Roger Naill	Department of Energy
Richard Nehring	Rand Corporation
Dale Nesbitt	Decision Focus, Inc.
David Nissen	Chase Manhattan Bank
Warner North	Decision Focus, Inc.
James Plummer	Electric Power Research Institute
James Reddington	Department of State
Benjamin Schlesinger	American Gas Association
John Stanley-Miller	Department of Energy
James Sweeney	Stanford University

Exhibit 1.b

COMPOSITE DISTRIBUTION ON THE ANNUITY
EQUIVALENT VALUE OF NATURAL GAS



For our base case, we assume the delivered volume of gas to be approximately 2 billion cubic feet per day, beginning in late 1986 and continuing for 25 years. This is the flow rate already authorized by the State of Alaska, and sufficient gas reserves have been proven to assure its feasibility.

Using the assumptions described above, the median present (mid-1981) value of the gas is $110 billion in 1980 dollars. The mode and mean values of the gas are $90 and $140 billion, respectively.

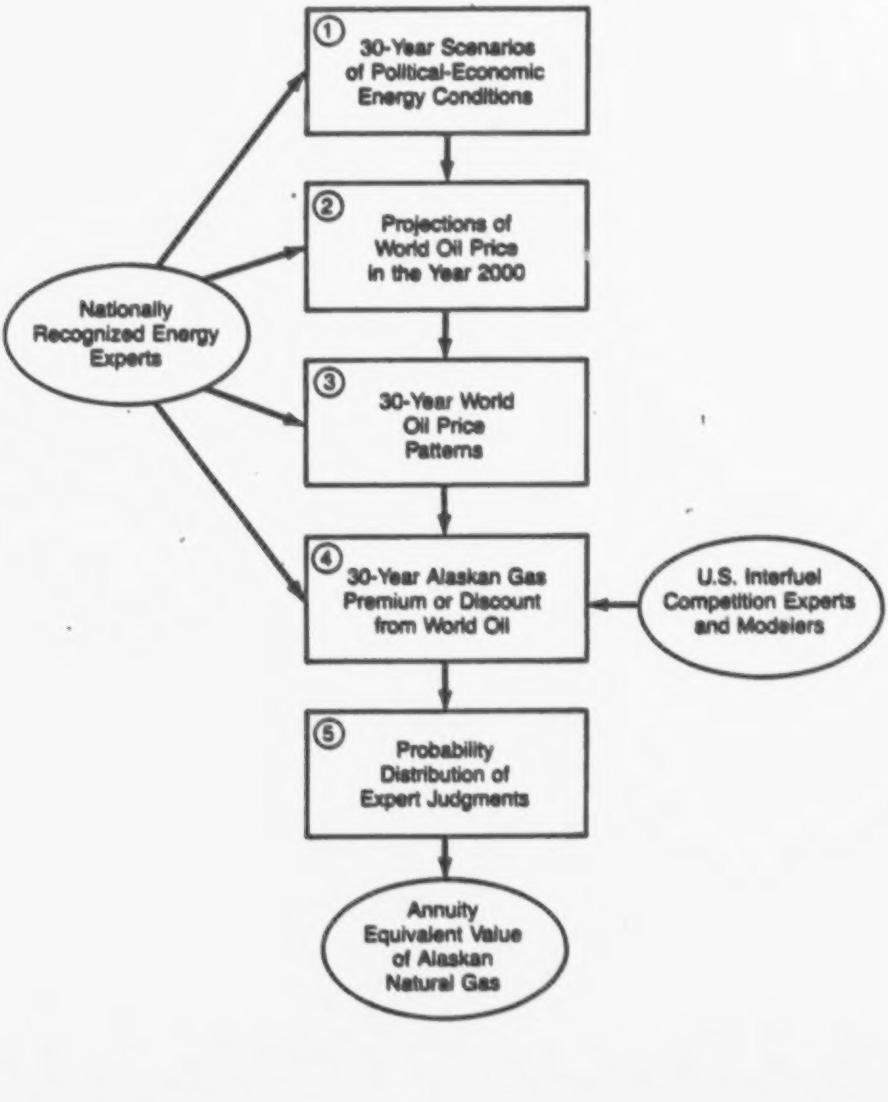
To derive the value of Alaskan gas, we employed the five-step process depicted in Exhibit 1.c. First, the range of possible settings for energy prices was considered by constructing 30-year scenarios of political-economic energy conditions. Second, based on these conditions, a probability distribution on world oil price in the year 2000 was assessed. Third, five 30-year world oil price scenarios were constructed, each corresponding to a price in the year 2000 sampled from the distribution. Fourth, for each world oil price scenario, three gas value scenarios were assessed. Fifth and finally, probability distributions on the levelized value of Alaskan gas were calculated based on the assessments obtained in the previous steps. Each step is further explained below.

Step 1:
Develop Scenarios

During our interviews with individual experts, a series of 30-year scenarios was developed. The scenarios included the experts' assumptions about the most influential factors on general world oil price levels. Typically, the experts considered world economic growth, geopolitical pressures and events (particularly in the Middle East), technological developments, governmental policies, and supply and demand elasticities. They developed at least three scenarios -- a likely scenario, a high energy price scenario, and a low energy price scenario.

Exhibit 1.c

FIVE-STEP APPROACH TO ESTIMATING
VALUE OF ALASKAN NATURAL GAS



① 30-Year Scenarios of Political-Economic Energy Conditions
② Projections of World Oil Price in the Year 2000
Nationally Recognized Energy Experts
③ 30-Year World Oil Price Patterns
④ 30-Year Alaskan Gas Premium or Discount from World Oil
U.S. Interfuel Competition Experts and Modelers
⑤ Probability Distribution of Expert Judgments
Annuity Equivalent Value of Alaskan Natural Gas

To illustrate, low-price scenarios were characterized by many experts as involving a stable Middle East and rapid technological development and/or depression in most industrialized countries and high elasticity of demand. High-price scenarios were generally characterized by international strife, slow technological progress, and environmental barriers to resource development.

Step 2:
Estimate World Oil Price in the Year 2000

For each of the scenarios defined in Step 1, the experts then developed estimates of world oil price in the year 2000. These estimates for each scenario were made as probability statements to capture the experts' degree of confidence. For example, one expert stated: "Given the low-price scenario, we have one chance in ten that no real growth in oil price will take place."

Using these results, and also considering implicitly the multitude of other scenarios that could unfold, the experts then developed an overall probability distribution on world oil price in the year 2000. Exhibit 1.d shows the result for an expert who believes there is a 10 percent chance that the price will exceed $114 per barrel in 1980 dollars and a 10 percent chance that it will be less than $53 per barrel. This expert also considers it equally likely that the price will be above or below $75 per barrel.

The distributions for all 28 experts are overlaid in Exhibit 1.e. Not surprisingly, a great divergence of opinion exists among these experts. One said the price will not be less than $150 per barrel, while another contended that it will not be greater than $70 per barrel. This divergence is due to differing opinions about events in the Middle East, oil discoveries, technological progress, synfuels production, coal development, and future societal values.

Exhibit 1.d

EXAMPLE OF ONE EXPERT'S DISTRIBUTION ON
THE PRICE OF WORLD OIL IN THE YEAR 2000

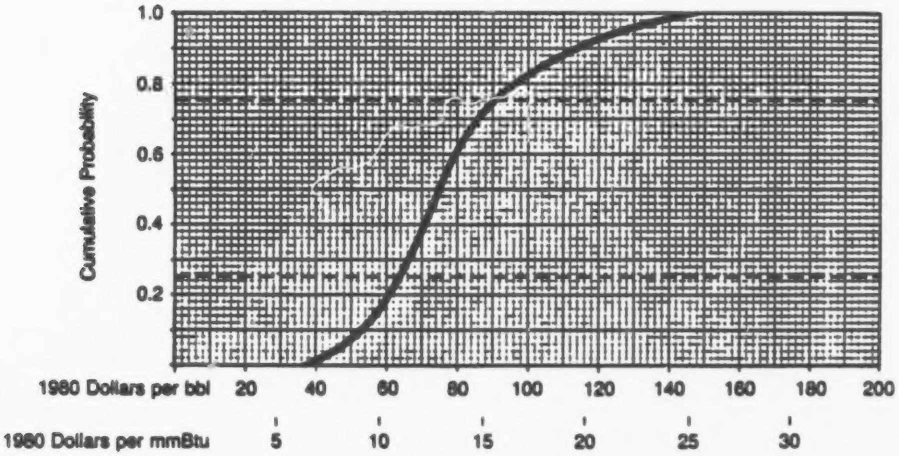
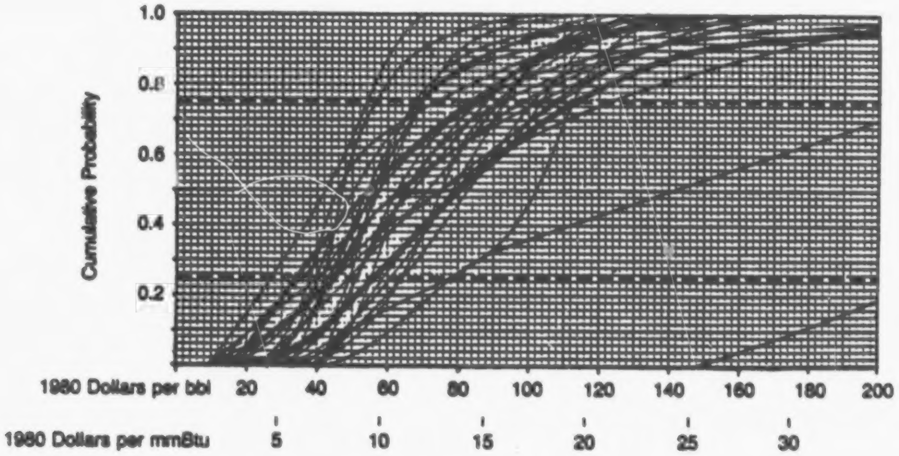


Exhibit 1.e

INDIVIDUAL EXPERTS' AND COMPOSITE
DISTRIBUTIONS ON THE PRICE OF WORLD
OIL IN THE YEAR 2000



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The collective judgment of all experts, giving equal weight to each opinion, results in a price ranging from $22 to more than $200 per barrel, with an expected value of $96 per barrel. We can safely say that the experts consider long-term energy prices extremely uncertain. Consequently, any single point estimate is of questionable worth to decision makers.

Most experts were optimistic about the ability of the world economy to cope with less oil. To support this view, they pointed to the relatively minor effect of the loss of Iraqi and Iranian production over the last year. Some, however, considered the world economy less resilient and thought that reduced oil supply combined with higher prices would cause a deep, prolonged world depression. This economic chaos could lead to very low oil prices in the long term. These experts also thought that high oil prices would cause rapid substitution away from oil and gas, thus lowering oil prices.

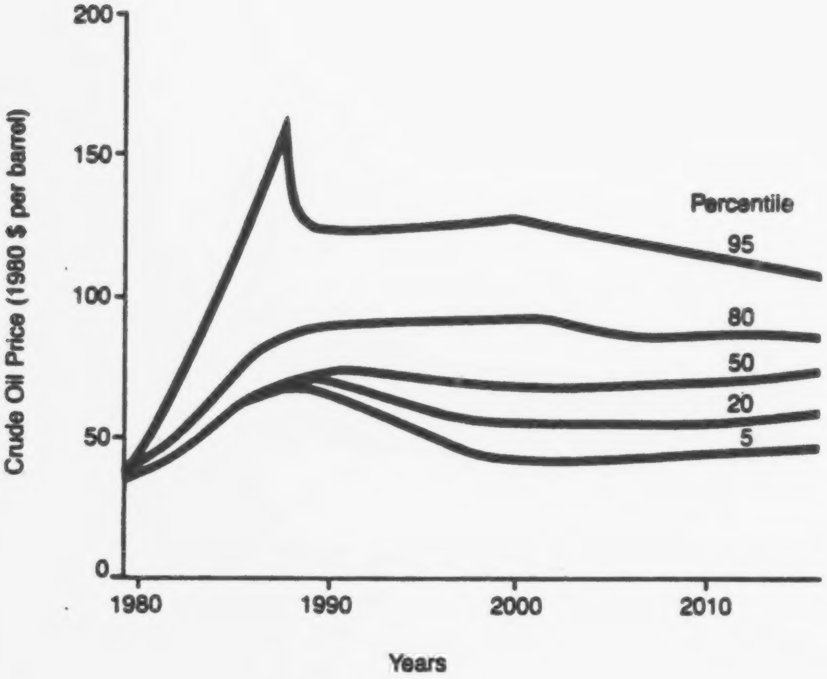
Several experts believe that world oil prices would develop along one of two equally likely scenarios. One scenario is a benign and stable Middle East with relatively high oil production. The other is a turbulent Middle East with major export production shortfalls. The result is a probability distribution on world oil price in the year 2000 that is a composite of two very different distributions, one for each scenario.

Step 3:
Assess World
Oil Price Patterns

In this step, we extended the results of the previous step to cover the entire period between 1980 and 2010. First, we chose five representative prices from the distribution on world oil price in the year 2000. Then, the experts developed a 30-year time pattern of oil prices consistent with each of these prices. If experts felt that significantly different patterns could be consistent with a single price, they were asked to assess a "weighted average pattern." An example of an expert's price patterns is presented in Exhibit 1.f.

Exhibit 1.f

EXAMPLE OF ONE EXPERT'S
30-YEAR WORLD OIL PRICE PATTERNS



Opinions about time patterns for world oil prices also varied considerably. However, most experts felt that prices would increase substantially and that most of this increase would occur between now and the year 2000, with a slow increase or decline beyond the year 2000. This pattern was explained in several ways. First, experts anticipated that new and more efficient energy production and utilization technologies would emerge by the year 2000, thus halting the rise in oil prices. Second, many experts believed that at least one major disruption in the world oil market would occur before the year 2000. However, there were three points of view as to the effect of this disruption on oil prices. Most experts expected that the price would jump and then remain nearly constant until the long term trend caught up, or until there was another disruption. A few foresaw a temporary surge in prices, followed by a return to the trend. And one anticipated that a surge would later cause the price to fall below the trend line.

In addition to these general patterns, two unique forecasts are noteworthy. One expert envisioned a possible future in which the Organization for Economic Cooperation and Development (OECD) would abandon conservation and new technologies and would later be caught unprepared by the price increases of the Organization of Petroleum Exporting Countries (OPEC). In this scenario, OPEC would adopt a benign pricing strategy for the next ten years. This period would be marked by slowly declining world oil prices and followed by aggressively coordinated price hikes, which would result in very high oil prices in the period between 1990 and 2010. Another expert forecasted an attempt by OPEC to achieve a major price increase in the early 1980s, which would prompt extreme reactions by the consuming nations (e.g., mandatory conservation measures or military intervention in the Middle East). After the reaction, demand would drop sharply, OPEC would collapse, and world oil prices would fall accordingly.

Step 4:
Estimate Gas Value Scenarios

For each of the world oil price patterns developed in Step 3, the experts were asked to consider the premium or discount that gas could command in the unregulated U.S. energy markets. The experts considered the factors that may cause gas to be valued above or below oil on an equivalent-Btu basis. These factors include the cost of fuel conversion, long-term supply and demand situations, air quality standards, and other regulations affecting energy use.

Each expert developed three gas value estimates (10 percentile, 50 percentile, and 90 percentile estimates) for each of the five oil price patterns, leading to 15 gas-value patterns. Again, the experts' opinions about the gas value relative to oil price levels varied considerably over the 30-year period. Generally, the different views hinged on the weight given to the premiums for liquids in the transportation sector and the premiums given to cleanliness and efficiency for the gas. Most experts also took into account the future conversion costs from one fuel to the other.

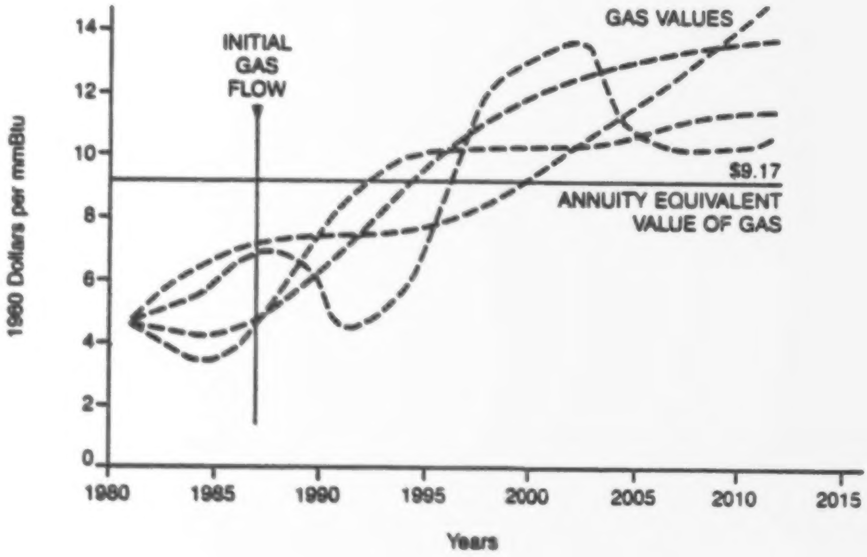
Two camps emerged among the experts: those who considered gas a discounted fuel (especially if oil price level was very high), and those who expected a slight premium for the gas because of its clean-burning characteristics. All experts considered gas value to be linked closely to world oil price.

Step 5:
Develop Probability Distribution on Gas Value

In the final step, we calculated a probability distribution for each expert on the levelized value of Alaskan gas, as well as a composite distribution. The levelized gas value is a single-number summary of a pattern of values over time. It is a uniform annuity equivalent (i.e., a constant annual value whose present value is the same as a changing pattern). As shown in Exhibit 1.g, a single levelized value may correspond to widely different patterns of values. We chose levelized value as the measure of the value of Alaskan gas for three reasons. First, it can be more readily compared to other energy prices. Second, it can be used to calculate the absolute present value of the gas. Third, it can be represented graphically by a probability distribution.

Exhibit 1.g

RELATIONSHIP BETWEEN GAS-VALUE PATTERNS
AND THE ANNUITY EQUIVALENT VALUE OF GAS



The results obtained in this step are displayed in Exhibit 1.h. The heavy curve is the composite distribution that was obtained by giving each expert equal weight; it is the same as the curve in Exhibit 1.b.

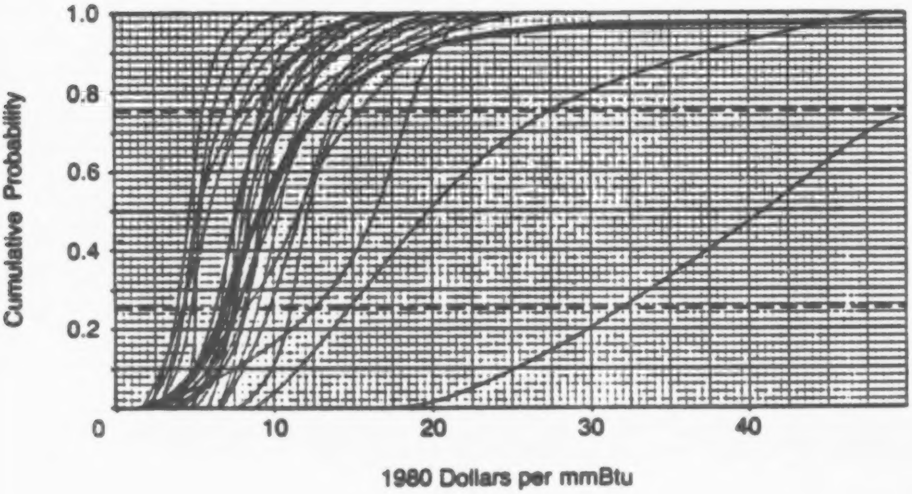
For each expert, the probability distribution on levelized gas value was calculated as follows:

- Each of the 15 gas-value patterns (three for each of the five world oil price patterns) was converted to a levelized value.
- Probabilities were approximated for each of these values, based on the assessments of Steps 2 and 4.
- The distribution was constructed from the probability-value pairs.

The collective judgment was the gas value used for the NNEB analysis presented in Chapter 3. The median value annuity equivalent of $9.17 per million Btu was used for the base case. Given that the gas value distribution is highly skewed upward with an expected value of $11.79 per million Btu, this assumption is conservative.

Exhibit 1.h

INDIVIDUAL EXPERTS' AND COMPOSITE DISTRIBUTIONS ON THE ANNUITY EQUIVALENT VALUE OF NATURAL GAS



2 ANGTS COSTS

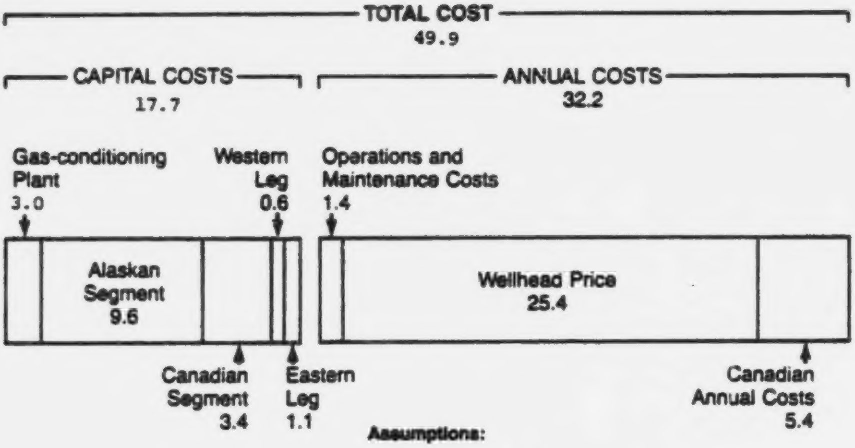
ANGTS is composed of a gas-conditioning facility at Prudhoe Bay and several major pipeline segments that ultimately deliver gas near Chicago and San Francisco. The total cost of delivering the gas to the U.S. consumers is $73 billion in 1980 dollars. This includes the cost of the natural gas at the wellhead, the capital costs of facilities to condition and transport Alaskan gas, the operating and maintenance costs, and Canadian annual costs. It does not include inflation, financing charges, or the incentive rate of return rate base adjustment. Discounted at a 3 percent real discount rate, the total mid-1981 present value cost is approximately $50 billion in 1980 dollars. The components of this cost are illustrated in Exhibit 2.a. In this chapter, we present the estimates of the capital and annual costs of ANGTS as provided to RPA by the Northwest Alaskan Pipeline Company.

CAPITAL COSTS

The gas-conditioning facility, the Alaskan segment of the pipeline, and the northern portion of the Canadian segment must be built solely to prepare and transport the natural gas produced at Prudhoe Bay. The southern portion of the Canadian segment and the U.S. Eastern and Western segments of the pipeline will transport both Alaskan and Canadian gas. The combined capital costs attributable to conditioning and delivering Alaskan gas add up to $19.5 billion in 1980 dollars. Discounted at 3 percent, the present value of these costs is $17.7 billion. Capital costs represent 34 percent of the total cost to be borne by the United States. They are explained individually below.

Exhibit 2.a

COMPONENTS OF THE TOTAL COST OF DELIVERED GAS (1980 $ billions present value)


TOTAL COST
49.9
CAPITAL COSTS
17.7
ANNUAL COSTS
32.2
Gas-conditioning Plant
3.0
Western Leg
0.6
Operations and Maintenance Costs
1.4
Alaskan Segment
9.6
Wellhead Price
25.4
Canadian Segment
3.4
Eastern Leg
1.1
Canadian Annual Costs
5.4

Assumptions:

NGPA Wellhead Price
(including 10% Alaskan severance tax).
No Design and Scope Changes.
No Regulatory Delays.
Incremental Capital Costs of Transportation
System for Alaskan Gas Only.
Real Discount Rate of 3%.

Gas-Conditioning Facility

A $3.3 billion cost is assumed for the gas-conditioning facility in 1980 dollars. The present value cost is $3.0 billion in 1980 dollars, using a 3 percent real discount rate. This cost represents 17 percent of the capital costs and 6 percent of the total cost of ANGTS.

Alaskan Pipeline Segment

From the gas-conditioning facility at Prudhoe Bay, the Alaskan segment of the pipeline system takes the gas south to Fairbanks and then southeast to the Canadian border. Second to the cost of the gas itself, this segment has the largest cost associated with the project. The capital cost for the Alaskan pipeline segment is $10.6 billion in 1980 dollars. Using a 3 percent real discount rate, the present value of this cost is $9.6 billion. The Alaskan pipeline segment accounts for 54 percent of the ANGTS capital costs and 19 percent of the total cost to be paid by the United States for Alaskan gas deliveries.

Canadian Pipeline Segments

From the Alaskan border, the gas is transported southeast through Canada to the United States. The cost of the Canadian pipeline segments is approximately $5.8 billion in 1980 dollars. However, some of the pipeline capacity will be devoted to carrying Canadian gas. Of the 1179.9 trillion cubic feet per year to be delivered through ANGTS in the Lower-48 states, 406.4 trillion cubic feet (or 34 percent) will be Canadian gas. Accordingly, approximately 34 percent of the Canadian portion of ANGTS is devoted to Canadian gas transportation. The capital cost attributable to Alaskan gas is therefore $3.8 billion in 1980 dollars. Discounted at 3 percent, the present value of the Canadian capital cost required to transport Alaskan gas is $3.4 billion in 1980 dollars. The cost of the Canadian pipeline segments is 19 percent of the capital costs and 7 percent of the total cost to the United States.

Lower-48 Pipeline Segments

Near Caroline, Alberta, the Canadian pipeline bifurcates. One segment travels southeast to the Chicago area and the other travels southwest to the San Francisco area. Both of these pipelines will be carrying Canadian gas before the Alaskan flow begins in late 1986. Once Alaskan flow begins, the Eastern and Western segments will carry approximately 64 and 70 percent Alaskan gas, respectively. Of the $1.8 billion total cost in 1980 dollars of the U.S. Eastern segment, $1.2 billion is attributable to Alaskan gas. Of the $0.8 billion total cost in 1980 dollars of the U.S. Western segment, $0.6 billion is attributable to Alaskan gas. Taken together and discounted with a 3 percent real discount rate, the present value of the cost of these segments is $1.7 billion in 1980 dollars. The Lower-48 pipeline segments account for 10 percent of the capital costs and only 3.4 percent of the total cost to be borne by the United States.

ANNUAL COSTS

The annual costs include the cost of the natural gas itself, ANGTS operating and maintenance costs, and the Canadian cost of service. These costs amount to $57.3 billion in 1980 dollars. Discounted at a 3 percent real rate, the present value of these costs is $32.2 billion. Annual costs represent 65 percent of the total cost for delivered Alaskan gas. They are discussed separately below.

Natural Gas Cost

The natural gas cost at the wellhead is the largest single cost associated with the project. The gas cost is determined by Alaskan severance tax policy, the Natural Gas Policy Act of 1978 (NGPA), and the flow rate into the gas-conditioning facility. Alaska is likely to charge a 10 percent severance tax on the wellhead price of the gas. The NGPA specifically omits Prudhoe Bay gas from deregulation and allows the maximum price of the gas to rise only with inflation. Consequently, the real cost of the gas will not rise as long as the NGPA is in effect. Finally, the assumed input flow rate is 2.1 billion cubic feet per day beginning in late 1986. The natural gas cost amounts to $42.1 billion in 1980 dollars, $22.6 billion greater than all capital costs combined. Using a 3 percent real discount rate, the present value of the natural gas cost at mid-1981 is $25.4 billion in 1980 dollars. At this discount rate, the cost of the gas represents 51 percent of the total cost.

Operating and Maintenance Costs

Operating and maintenance costs for ANGTS, excluding Canada, are $2.4 billion in 1980 dollars. These costs were estimated by weighting the costs for each segment by the proportion of Alaskan gas flowing through the segment. They do not include the cost of the pipeline gas used by compressors at compressor stations, which is recognized only by increasing the cost of gas leaving each segment above the cost of the gas as it entered the segment. The present value of the operating and maintenance costs is $1.4 billion in 1980 dollars, using a 3 percent real discount rate. Using this same discount rate, operating and maintenance costs outside of Canada account for 3 percent of the total cost.

Canadian Annual Costs

Finally, the Canadian annual costs going to the Canadian government and the sponsors of the Canadian segments is approximately $9 billion in 1980 dollars. These costs represent the difference between the Canadian cost of service ($12.8 billion) and the Canadian capital costs ($3.8 billion) and includes Canadian segment operating and maintenance costs (approximately $0.6 billion). Using a 3 percent real discount rate, the present value of the Canadian cost of service is $8.8 and of capital costs is $3.4 billion. Thus, the present value of Canadian annual costs is $5.4 billion in 1980 dollars. These annual costs must be subtracted from NNEB because they are costs paid by U.S. parties.

3 NET NATIONAL ECONOMIC BENEFITS OF ANGTS

In the two preceding chapters, we presented estimates of the value of the Alaskan gas and the cost of the gas and transportation system. In this chapter, we combine value and cost to derive the NNEB of ANGTS. We begin by reviewing the underlying assumptions in the NNEB estimate, including the use of a 3 percent real discount rate. Finally, we examine the sensitivity of the base case to several important assumptions about the project.

Briefly, the base case present value of the NNEB of ANGTS is approximately $60 billion in 1980 dollars, assuming a real discount rate of 3 percent. Although this figure is sensitive to several important variables, none of these variables, within a reasonable range, causes it to be negative. Furthermore, the risks of a lower NNEB are outweighed by the potential of a significantly higher NNEB.

THE BASE CASE

Several government agencies, energy companies, and consultants have estimated the NNEB of ANGTS. All of these studies have used similar methodologies. The most recent study concludes that "the ANGTS project would generate overwhelming net benefits to the nation and to each major project participant, including producers, pipelines, consumers, and government."*

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* Douglas B. Fried and William F. Hederman, Jr., "Benefits of an Alaskan Natural Gas Pipeline," The Energy Journal, Vol. 2, No. 1, pp. 19-36, 1981. The NNEB estimate in this study was $22 billion in mid-1980 dollars, using a 6 percent real discount rate and somewhat lower gas values.

The NNEB is derived by subtracting the costs presented in Chapter 2 from the value of the gas presented in Chapter 1. This procedure yields a combined estimate of cost savings to energy wholesalers and consumers, of government tax receipts, and of returns to project investors.

The $60 billion estimate of the NNEB for the base case is derived as follows:

Components of NNEB	Value ($ billions)
Value of Delivered Gas	110.0
Capital Costs	17.7
Operating and Maintenance Costs	1.4
Wellhead Price	25.4
Canadian Annual Costs	5.4
Total Cost of Gas	49.9
Net National Economic Benefits	60.1

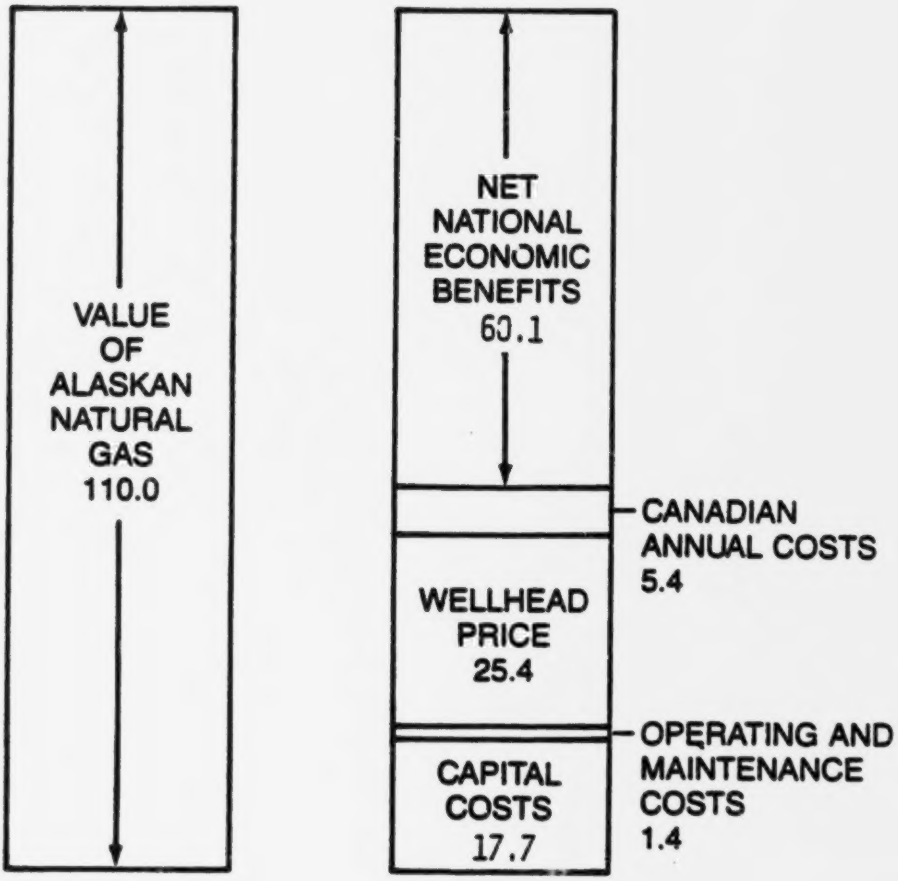
The relative magnitude of these components is displayed in Exhibit 3.a.

This estimate of the NNEB rests on a number of implicit assumptions:

- The gas will ultimately "back out" foreign energy sources or U.S. sources that would have a cost equal to the gas value.
- The gas is valued at the wellhead price before entering the conditioning or transportation system.

Exhibit 3.a

RELATIONSHIP BETWEEN NNEB ESTIMATE
AND VALUE OF ALASKAN NATURAL GAS
(1980 $ billions)


VALUE OF ALASKAN NATURAL GAS 110.0
NET NATIONAL ECONOMIC BENEFITS 60.1
CANADIAN ANNUAL COSTS 5.4
WELLHEAD PRICE 25.4
OPERATING AND MAINTENANCE COSTS 1.4
CAPITAL COSTS 17.7

- The availability of the gas does not have a significant impact on overall world energy prices or supply and demand relationships.
- The additional benefits of improved balance of payments and increased energy independence are not included.
- Benefits to contractors and vendors for the construction of the system are ignored.

SENSITIVITY ANALYSIS OF THE BASE CASE

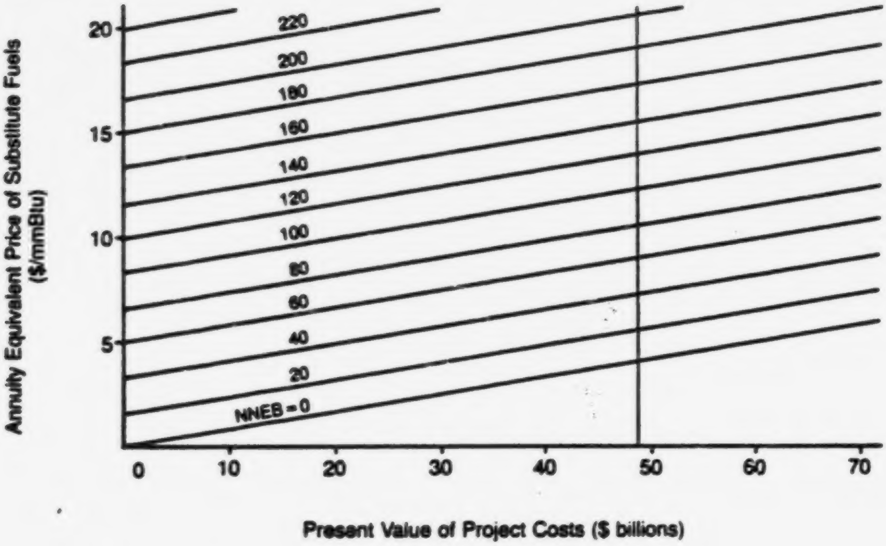
In addition to the above implicit assumptions, the specific assumptions that were made for the base case analysis are highly uncertain. For example, the value of the gas, based on the experts' collective judgment, had one chance in ten of being below $4.94 per million Btu. Moreover, ANGTS is still in an early stage of engineering and its capital costs are not yet definite. Also, if additional reserves are discovered, the delivery volume and the project life could increase significantly.

Beyond these uncertainties, considerable controversy has surrounded the selection of an appropriate discount rate. Briefly, the real rate of return on risk-free private investments such as U.S. Treasury Bills is an upper bound on the appropriate rate. This is because ANGTS will provide a hedge against the risks of present dependence on imported energy. Historically, U.S. Treasury Bills have yielded less than a 3 percent real rate of return.

In Exhibit 3.b, we present the relationship of the NNEB estimate to changes in project cost and gas values. The base case is identified on the graph. Note that a $10 billion increase in project costs could be completely offset by a $0.83 per million Btu increase in gas value. This relationship explains why ANGTS is so attractive today -- even though cost estimates have grown significantly. The doubling of oil prices in late 1979 more than made up for the increase in project cost estimates.

Exhibit 3.b

NNEB FOR DIFFERENT PROJECT
COSTS AND GAS VALUES



The degree of uncertainty in gas value and project cost is demonstrated in Exhibit 3.c. As shown, uncertainty in the NNEB ranges from a high of $170 billion to a low of $5 billion. The NNEB corresponding to the modal value of the gas is $40 billion. For the expected gas value, the NNEB is $90 billion.

The other key sensitivities are given in Exhibit 3.d. As evident in this table, the value of the gas is by far the single most important factor. It can increase the NNEB by $110 billion or decrease it by $51 billion. Changes in the U.S. project cost have a dollar for dollar effect on the NNEB. However, even major changes in costs claim only a small fraction of the NNEB.

Although a higher discount rate does not seem justified, the NNEB is clearly sensitive to the discount rate assumption. A higher discount rate decreases the value of future energy cost savings and therefore reduces the NNEB signficantly. The present value of project costs also drops, but less since the capital costs are expended much earlier. This relationship is presented in Exhibit 3.e. Even at the most extreme assumption of a 10 percent real discount rate (above inflation), the NNEB exceeds $13 billion.

The NNEB analysis was performed in real 1980 dollars. Changes in inflation rate assumptions would have no effect on the NNEB value.

Exhibit 3.c

NNEB OVER EXTREME RANGES OF
PROJECT COSTS AND GAS VALUE

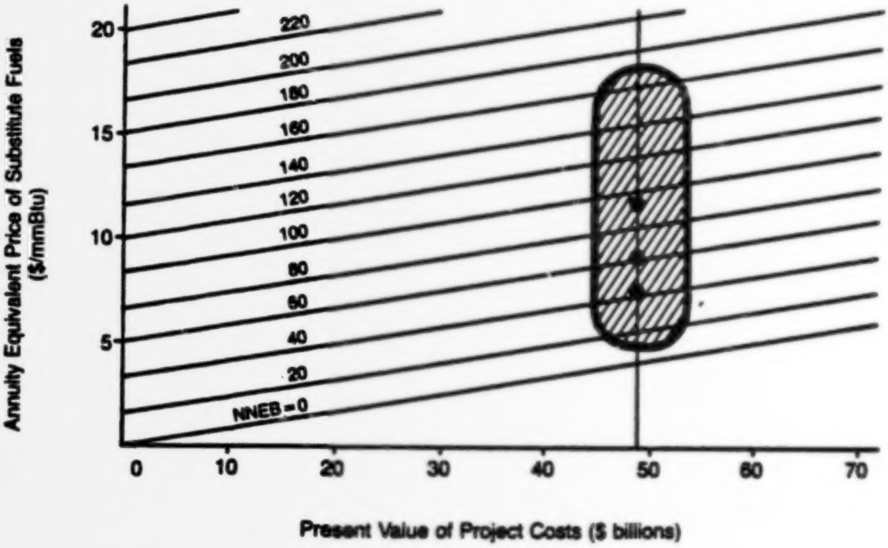


Exhibit 3.d

SENSITIVITY OF NNEB TO
CHANGES IN MAJOR ASSUMPTIONS

Assumption	Sensitivity Scenario			Change in NNEB From Base Scenarios (1980 $ billions)	
	Low	Base[a]	High	Low	High
Value of Gas ($/mmBtu)	4.94	9.17	18.32	-51	+110
Project Cost[b] (1980 $ billions)	55	50	-	-5	-
Real Discount Rate (%)	6	3	-	-29	+54
Project Life (years)		25	50	-	+39

a. Median NNEB of $60 billion.

b. Assumes a 30 percent capital cost increase. Also assumes no increase in Canadian annual costs or taxes as a result of a cost increase.

Exhibit 3.e

SENSITIVITY OF NNEB TO REAL DISCOUNT RATE (1980 $ billions)

	Real Discount Rate (%)			
	0	3	6	10
Value of Gas	187.2	110.0	67.9	39.0
Project Costs	-73.0	-49.9	-36.4	-25.9
NNEB	114.2	60.1	31.5	13.1

* Based on median estimate of gas value ($9.17 per mmBtu).

APPENDIX H

JOINT STATEMENT OF INTENTION

Atlantic Richfield Company, Exxon Corporation, and The Standard Oil Company (Ohio) (the Producers), and Alaskan Northwest Natural Gas Transportation Company, a partnership (Alaskan Northwest), enter into this Joint Statement of Intention at the request of the United States Department of Energy.

Preliminary Recitals

The Producers and Alaskan Northwest have a common interest in the efficient and cost-effective construction and operation of the Alaska Natural Gas Transportation System (ANGTS) including the conditioning plant at the earliest practicable date. Alaskan Northwest has developed a construction schedule for the ANGTS which would result in completion of the system in 1985.

The facilities to be constructed in the State of Alaska which are necessary to placing the ANGTS in service require immense capital investment, and private sector lenders who will be asked to advance funds for the construction of Alaskan facilities will require reasonable assurance that the facilities will be completed and placed in service, and their debt serviced.

The President's Decision and Report to Congress describes the plan for private financing of the ANGTS to be implemented by Alaskan Northwest. Alaskan Northwest has indicated that the Alaskan segment of ANGTS can be financed in the private sector, if there is meaningful participation by the Producers in the financing structure. The Producers have indicated willingness to participate in a substantial way with Alaskan Northwest in the financing of the Alaskan pipeline and conditioning plant upon reasonable terms and conditions, provided they are not placed in the position of becoming, in effect, the ultimate guarantors of completion of the ANGTS and provided that their financial exposure is effectively limited.

In an effort to move forward in surmounting the acknowledged difficulties presented by this project, the parties have entered into a Cooperative Agreement for continued design and engineering of the Alaskan gas pipeline and the conditioning plant which will prepare natural gas produced from the Prudhoe Bay unit of Alaska for transmission through ANGTS.

Statement of Intention

It is the mutual objective of the Producers and Alaskan Northwest that the ANGTS be completed and placed in service at the earliest practicable date and, accordingly, the Producers and Alaskan Northwest intend to use their best efforts, on a joint and cooperative basis, to expedite design, engineering and cost estimation.

The Producers, together with their advisers, will work with Alaskan Northwest in an effort to develop its financing plan in such time and manner so that necessary governmental approvals may be obtained and construction commenced and completed as scheduled by Alaskan Northwest.

It is recognized that in order for the financing plan to be acceptable to the financial community the project must be economically sound and the financing plan must accommodate reasonably desired protections for the interests of potential lenders. If the parties, or any of them, conclude that alternate approaches in financing, or waivers of law under the Alaskan Natural Gas Transportation Act are necessary to effectuate a feasible and effective plan of financing, such party or parties may develop alternatives and advise appropriate authorities of their conclusions.

This Statement of Intention shall be signed after approval hereof by the Department of Energy.

IN WITNESS WHEREOF, the parties have executed this 19th day of June, 1980.

Alaskan Northwest Natural Gas Transportation Company, Acting By and Through its "Operator", Northwest Alaskan Pipeline Company

By____________________

Atlantic Richfield Company

By____________________

Exxon Corporation

By____________________

The Standard Oil Company (Ohio)

By____________________

APPENDIX I

August 28, 1981

Mr. John G. McMillian
Chairman & Chief Executive Officer
Northwest Alaskan Pipeline Company
P. O. Box 1526
Salt Lake City, UT 84111

Dear Mr. McMillian:

In our letter of June 18, 1981, submitting our proposal to assist you in structuring financing for the Alaska Segment of the Alaska Natural Gas Transportation System (ANGTS) (the "Project"), we (the "Banks") indicated that, in the first phase of our work, we would complete a preliminary review of capital markets and funding sources for the Project and present to you our initial assessment, not only of the amounts, but also of the basic terms on which we believe funds from these sources might be available. We also undertook to develop an approach to reviewing the technical and marketing aspects of the Project and to determine how we could obtain satisfactory access to a financial model to assist us in analyzing the financing plan.

On August 6, 1981 we wrote to you to report on the first phase of our work. In subsequent conversations you asked for certain clarifications and amplifications of statements in that letter. In response, we are submitting this letter which replaces and supercedes our earlier letter.

We have conducted our investigations and analysis on the basis of information furnished by you, contained in the presentations you gave to each of the Banks in late May, the Project Overview you supplied to each of the Banks at that time, your letter to Exxon, Sohio, and Arco (the "Producers") dated May 21, 1981 outlining the terms of the pipeline sponsors' (the "Sponsors") agreement with the Producers, a number of financial cases prepared by the Sponsors, and information you provided in connection with certain legislative waivers in order to facilitate financing and construction of the Project.

Concurrently with this phase of our work we have been considering the legislative waivers. We wrote to you on this subject on June 3, 1981, and on July 14, 1981 we made available to you a memorandum which was distributed to a number of Administration officials and Congressional staff. We continue to support the views expressed in those communications, and would emphasize the need for a flexible approach to "billing commencement" until a more definite financing plan is developed.

The principal focus of our efforts to date has been to address the funding availability and related credit aspects of the Project, and this letter deals almost entirely with these subjects. However, a few brief comments are also included on the work of our task forces which have been addressing the issues of Gas Marketability, Engineering, and Financial Modeling. These groups have been developing approaches to their respective aspects of the Project to be pursued in detail in subsequent phases of our work. While the scope of their work is more appropriately covered in a later proposal dealing with parameters and premises that should govern the next phase of our work, several of their conclusions are relevant to this report and form Appendix A.

Inter-Relationship of ANGTS Segments

We were asked to focus our analysis of the Project on the Sponsors' share of the financing for the Alaska Segment. However, upon reflection, it became apparent to us that it would be necessary to broaden our consideration to take into account the impact on the capital markets of the aggregate financing requirements of both the Sponsors and Producers in Alaska as well as the financing requirements for the overall ANGTS project, including Canada and the "lower 48".

a) We understand that it is the intent of both the Sponsors and Producers that, after completion, all financing for the Alaska Segment is to rely on a common source of repayment, i.e. the tariff arrangements. Therefore, we could not ignore the Producers' share of the Financing for the Alaska Segment and did not attempt to consider separate and discrete financings for the Sponsors and Producers.

b) Since, to the best of our knowledge, the post-completion sources of repayment for the Alaska Segment, the financing of the expansion of the "lower 48" facilities and the refinancing of the prebuilt segments will rely on common payment arrangements through the tariffs, we expect that lenders would consider those financings one credit for risk and funding allocation purposes.

c) While the Canadian segment will have available to it additional Canadian loan sources, there is a substantial overlap both in the available funding sources and in the risks, given that all segments rely on related tariffs.

Funding Availability Study

Appendix B contains our initial assessment of funds availability, together with preliminary indications of the basic terms on which funds might be made available for the Project. Although our estimates are based on conversations with a relatively small number of potential lenders, the results conform with our own views and we believe are an accurate reflection of availability of funds in world capital markets under current market conditions.

For reasons described below, the review was undertaken on the basis that the loans would be the risk equivalent of debt with an A/Baa credit rating. Given the equivalent of an A/Baa credit, the maximum amount of Project credit available for the Alaska segment is estimated to be between $12 billion and $18 billion. For reasons described above, this amount will be affected by the funding strategy for the Canadian segment and for the expansion of the "lower 48" facilities. This total amount includes loans from domestic and foreign banks, foreign export credit agencies, and institutional lenders, all of whom are assumed to commit in early 1982. This assumes the satisfactory negotiation of acceptable terms with foreign export credit agencies, i.e. their willingness to accept the same credit support as the banks and longer than usual maturities, and the current reluctance of insurance companies to make forward commitments. We expect, however, that insurance companies might be willing to lend additional amounts beyond those contemplated in the funding study as the Project progresses.

We anticipate that the typical final maturity for the financing would be ten years with a grace period of five years and an average life of 7.5 years. There would, of course, be tranches with final maturities of 5-7 years from the smaller U.S. and European banks and of 12-15 years from certain larger banks and institutional lenders. The bulk of the bank financing would, however, have a ten year final maturity and a 7-8 year average life.

Without a dramatic improvement in credit quality, neither the availability of funds nor the average life of the financing would increase significantly. A reduction in credit quality below the equivalent of an A/Baa would, however, have a material adverse impact on both the amount and average life of the financing.

Basic Financing Conditions

The Banks have given considerable thought to the question of the basic financing conditions for the Project based on the assumptions you have provided:

1. Capital costs on an "as spent" basis of $21 billion for the pipeline and $6 billion for the conditioning plant, with a completion assurance pool of an additional $3 billion.

2. A debt equity ratio of 75%/25%, and an equity split of 70%/30% between Sponsors and Producers.

3. Your request that the Banks consider a completion pool of funds concept, i.e., irrevocable commitments from lenders and no formal undertakings from creditworthy parties to assure debt repayment in the event of non-completion by a date certain and/or pre-completion abandonment.

While we used these basic premises in our Phase I review and have drawn certain conclusions regarding their acceptability we suggest that any premises to be used in Phase II will need to be thoroughly tested as the Project's financial structure is developed.

Given the results of our funding study, and our review and consideration of the Project information forwarded to us, we have come to the following conclusions:

1. Our funding study clearly indicates that the overwhelming bulk of the financing will be available only if lenders perceive the credit structure to be the risk equivalent of debt of A/Baa quality.

   We believe that for the Project to be considered of this credit quality and, therefore, for commitments in the necessary amounts to be arranged prior to commencement of construction, the following basic criteria would have to be met:

   a) The ANGTS project must be economically and technically feasible.

   b) The debt must be supported by repayment assurances involving

      (i) during the pre-completion phase, a combination of

         -acceptable debt assumption arrangements by Sponsors, Producers and possibly other beneficiaries, and

         -acceptable commencement of billing provisions prior to the completion of the overall System;

      (ii) acceptable post-completion, cost of service transportation tariffs providing for debt service in all events;

      (iii) acceptable tracking provisions; and

      (iv) all tariff arrangements relating to debt service to have assurance of regulatory certainty mandated by law.

c) Sufficient funding must be considered by lenders to be available to meet potential overrun requirements.

d) The cash flow from the Project for debt repayment must be sufficient so that a substantial refinancing risk would not be present, particularly if the economics of the Project are potentially marginal in early years (see later discussion on refinancing risk).

It is our judgment that loans based on the completion pool of funds concept as presented will not be perceived by lenders generally to be of A/Baa quality. Consequently the bulk of the funds needed for the construction of the Project cannot be raised on that basis. Only a relatively small number of banks are capable of assessing and prepared to assume engineering-based risks as required under a completion pool of funds concept. We cannot ascertain the exact amount, if any, which might be raised for this Project on a completion pool of funds basis without having further developed the credit structure for all the financing. However, we strongly believe that: (i) the small number of banks prepared to provide financing on this basis would commit only a small part of their lending limits to such a credit and in the aggregate that amount would be a relatively small part of the total debt required, and (ii) such banks would require substantial inducements and difficult-to-achieve conditions precedent to any drawings under their commitments.

2. Although we have focused our analysis principally on the problem of funding availability and on basic conditions of the initial debt financing, several points relating to post-completion financing problems should be noted:

a) There could be substantial refinancing requirements in the early years of operation and perhaps in the later years of construction.

b) Once completed, the Project, assuming a properly functioning FERC-approved tariff, regulatory certainty, and demonstrated gas marketability, may command an investment grade rating for private placements and public issues.

c) On these assumptions, and with the understanding that not all refinancing requirements will have to be satisfied at one moment after completion, we believe that it should be possible to raise the amounts needed to refinance maturing loans.

3. We have not had an opportunity to review the bases on which the capital cost estimates are calculated, and therefore, are not in a position to comment on their appropriateness under modified debt financing concepts. Thus, we do not know the exact level of required funding for the Project and the overall ANGTS. To the extent that the debt requirements at the outset exceed the amount considered available for one credit, funds will have to be raised as entirely separate and discrete credits, under the full financial responsibility of creditworthy parties. Such commitments would be additional to any credit responsibility assumed by such parties in connection with debt repayment assurances for financings in the pre-completion phase of the Project.

Based on our conclusions and rather than pursuing the "completion pool of funds" concept as the primary method of raising debt financing (and it is our judgment that it cannot be relied upon) we suggest consideration of the following:

a) primary reliance on conventional project completion/debt assumption arrangements providing for an assured source of repayment by the equity owners in the event of non-completion and/or abandonment;

b) to the extent available, debt, which while not supported by debt assumption arrangements from equity owners in the event of non-completion, would be subject to conditions precedent to usage; these conditions would provide assurance that completion will occur and that the Project remains economically feasible;

c) debt support and/or debt from other beneficiaries of the Project; and

d) to the extent required, commencement of billing prior to completion of the overall system.

Given the capital cost estimates we have reviewed and based on the relevant financing parameters you have provided us, it is our considered opinion that all the debt support mechanisms outlined above in a), b), c), and d) will have to be aggressively pursued. We would strongly suggest that at this time the Sponsors place primary emphasis on the project completion/debt assumption arrangements.

In view of the Banks' conclusion that "the bulk of the funds needed for the construction of the project cannot be raised on a completion pool of funds basis" it may be desireable for the Sponsors to review the contingency provision in the capital cost estimates premised on the "completion assurance pool of funds" concept. This would yield a reduction of at least $3 billion in the $30 billion financing requirements as presented to us. Further reductions are, of course, dependent on the level of contingencies thought to be necessary including the rates of inflation and interest that are selected. We would encourage your review of the capital cost estimate to develop a base case for lender review of the total funding requirements under modified project financing concepts.

In summary, if the required credit support can be arranged, the Banks are of the opinion that a modified plan may well provide the basis for private sector financing of the Project. The nature of the modifications required are essentially, although not completely, covered in the suggestions we have recommended for your consideration. The way in which these suggestions are implemented will, of course, be instrumental, along with other conditions we have noted in this letter, in actually achieving the funding commitments that will be required.

We recognize that there are practical limits to the resources the Sponsors and Producers can and will commit to the Project, as well as limits to the extent of pre-completion consumer participation. We have not attempted to determine these limits, believing as we do, that these limits are best determined by negotiations within the partnership and by the regulatory and political process. The early determination of the relative interests of each equity participant will be a necessary precondition to the timely development of a financing plan.

While we have tried to provide you in this letter with our considered opinions on certain fundamental aspects important to the development of the financing, we feel that a forum for discussion of our views would be extremely helpful. We appreciate that the magnitude and complexity of the Project will necessitate a great deal of thought and discussion by all parties to arrive at a mutually agreeable financing plan. We would like to assure you of our enthusiastic support for and readiness to participate in such a discussion.

Sincerely,

BANK OF AMERICA NATIONAL TRUST
& SAVINGS ASSOCIATION

By
Vice President

THE CHASE MANHATTAN BANK
(NATIONAL ASSOCIATION)

By
Vice President

CITIBANK, N.A.

By Locke C. Griswold
Vice President

MORGAN GUARANTY TRUST COMPANY
OF NEW YORK

By
Vice President

ANGTS PROJECT
FUNDING SUMMARY

The Funding Committee has been requested to assess the availability of funds from all significant sources for the Alaskan portion of the Alaska Natural Gas Transportation System (ANGTS). Given the size of the capital requirements and the complexity of the project the study has been divided into the geographic areas of the United States, Canada, Middle East, Europe, Asia, and Latin America. Assessing the overall appetite of the worldwide capital markets involved an in-depth study of the legal and policy limits of the banking community in each geographic area, the potential interest of non-bank institutional lenders, and the historical lending policies of the suppliers and export credit agencies in each country based on the potential equipment sources submitted by the Company.

In order to insure consistency in the findings of each of the studies and to maximize the amount of credit which could be raised from each market, it was necessary to establish certain common assumptions. In assessing the available credit within each country several major financial institutions were contacted. They were informed that their names would not be revealed in order to avoid a feeling of moral commitment and thus an overly conservative response. The fundamental assumptions utilized in conducting the survey were as follows:

(1) The borrower would be the risk equivalent of debt with a medium grade investment rating (A/Baa). If the project is not equivalent to this credit the amount of funds available to the project will drop significantly.

(2) The pricing would be fully commensurate with the risk involved.

(3) Within each country it is important to coordinate and segregate the individual financings with each category of financial institution in order to provide high visibility and thus motivation for strong participation. The coordination must not only extend to each individual financing for the Alaskan segment of ANGTS, but to the financing plans for the other segments of the pipeline system.

(4) Each financial institution must be approached correctly and at the appropriate level.

(5) It is important to give the financial institutions adequate time to analyze the material submitted in order to conduct their own assessments of the viability of the project. In this regard, presentations should be organized for the various countries.

(6) Specific presentations should be organized for the U.S. institutional market by the commercial bank advisory group due to their involvement in the project through an advisory role and as direct lenders. This would supply further credibility and maximize the funds available from this source.

Although the survey had been initially structured to segment the market in terms of the amounts available for 5 year commitments, 5-10 year commitments and 10-15 year commitments, the final conclusion reached was that 10 years (an in a few instances 12 years) would be the maximum overall term available except for the U.S. institutional market, but that within each individual financing one may need to offer a variety of commitment tenors and average lives in order to obtain the largest amounts. Therefore, the amounts listed for each goegraphic area take this into consideration. Two columns have been included for conservative and relatively aggressive estimates. These numbers are based on the optimal blend between local currency and U.S. dollars for each geographic area although the local currency content would relate principally to export facilities. The incremental sums from institutional lenders which could be raised in later construction phases have not been assessed in detail. To the extent that the sponsors are successful in maintaining the construction program on a timely basis within cost parameters it is certainly probable that additional funds from these sources would be available. Also to the extent that an investment grade rating were obtained, the incremental sums which could be obtained from the public markets in the U.S. and abroad could be substantial. The preliminary estimates for the amounts which could be raised under the above assumptions are as follows:

FUNDING ESTIMATE SUMMARY
IN THOUSANDS OF U.S. DOLLARS

U.S.		
Commercial banks	$3,000,000	$3,500,000
Institutional lenders	1,500,000	2,500,000
Canada		
Commercial banks	2,500,000	3,000,000
Europe		
Commercial banks	3,500,000	4,000,000
Middle East		
Commercial banks	500,000	500,000
Asia		
Commercial banks	1,800,000	2,400,000
Latin America		
Commercial banks	150,000	250,000
	$12,950,000	$16,150,000
Export Credit Facilities	1,700,000	1,700,000
	$14,650,000	$17,850,000

APPENDIX J

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D. C. 20426

August 18, 1981

MEMORANDUM TO: Honorable Philip R. Sharp
Chairman
Subcommittee on Fossil & Synthetic Fuels
Committee on Energy and Commerce
House of Representatives

Honorable Clarence J. Brown
Ranking Minority Member
Subcommittee on Fossil & Synthetic Fuels
Committee on Energy and Commerce
House of Representatives

FROM : Charles A. Moore
General Counsel
Federal Energy Regulatory Commission

RE : Proposal by Sponsors of the Alaskan Natural Gas Transportation System (ANGTS) for Congressional Waiver of Sections 4, 5, 7 and 16 of the Natural Gas Act in Certain Respects Pursuant to Section 8g of the Alaskan Natural Gas Transportation Act of 1978

Questions Presented

By letter of July 24, 1981, to C. M. Butler III, Chairman, Federal Energy Regulatory Commission, 1/ you requested a legal memorandum addressing the following questions:

1/ Hereinafter, the term "Commission" refers to the Federal Power Commission at all times before October 1, 1977, and the Federal Energy Regulatory Commission at all times thereafter.

(a) The full implications of the proposed waiver quoted hereinbelow, (b) whether there have been past Commission actions which justify the desires of the sponsors to have Congress provide the waiver, (c) hypothetical situations which would work to the injury of the pipeline sponsors of ANGTS or other participants in the project should no such waiver be provided by Congress, (d) hypothetical situations which might work to the injury of resale customers and consumers should such a waiver be provided by Congress, and (e) the reasonable likelihood of the hypothetical situations actually occurring.

The text of the waiver request, as set forth in your letter, is as follows:

> Authority to Modify or Rescind Orders
>
> Waive Sections 4, 5, 7, and 16 of the Natural Gas Act to the extent that such sections would allow the Commission to change the provisions of any final rule or order approving (a) any tariff in any manner that would impair the recovery of the actual operation and maintenance expenses, actual current taxes, and amounts necessary to service debt, including interest and scheduled retirement of debt, for the approved transportation system; or (b) the recovery by shippers of Alaska gas of (1) all costs related to the purchase of such gas at just and reasonable rates, and (2) transportation of such gas pursuant to an approved tariff.

We are advised that this text is currently a topic of discussion at staff levels in the Administration and the Congress, and that the text may be revised in one or more respects. Accordingly, the memorandum is expressly limited to the preceding text, although I will be pleased to respond as expeditiously as possible to any questions you might have in connection with material changes in such text.

Discussion

1. Background

As you know, the ANGTS is an international project created to transport natural gas from the North Slope of Alaska, through Canada, to the lower 48 states. The United States portion of the system consists of three segments: (1) the Alaska segment, running from Prudhoe Bay on the North Slope to the Yukon border; (2) the Western Leg, running from the British Columbia border to California; and (3) and the Northern Border pipeline, running from a point on the Canadian border near Monchy, Saskatchewan, to Dwight, Illinois.

The ANGTS is unlike any other gas pipeline in the United States in that it is governed by a unique legal framework. The Alaska Natural Gas Transportation Act (ANGTA), 15 U.S.C. section 719, *et seq.*, enacted by Congress in 1976, supplements (but does not replace) the Natural Gas Act: certificates are issued under the Natural Gas Act pursuant to procedures mandated by ANGTA.

Pursuant to Section 7 of ANGTA, the President, in September of 1977, submitted his *Decision and Report to Congress on the Alaska Natural Gas Transportation System* (Executive Office of the President, Energy Policy and Planning) which designated both the project sponsors and the route for the ANGTS as well as many conditions for its construction. Congress approved the President's *Decision* by Joint Resolution, which became law on November 8, 1977. H.R.J. Res. 621, Pub. L. No. 95-158, 91 Stat. 1268, 95th Cong., 1st Sess. (1977).

The ANGTS is also governed by two international agreements with Canada, both of which have the force and effect of law. The "Agreement Between the Government of the United States of America and the Government of Canada Concerning Transit Pipelines," entered in force October 1, 1977 after ratification by the Senate, applies to all pipelines in both countries whenever one country's pipeline carries the other country's gas or oil. The treaty mandates nondiscriminatory treatment.

The "Agreement Between the United States of America and Canada on Principles Applicable to a Northern Natural Gas Pipeline," signed by representatives of the two governments on September 20, 1977, is an executive agreement that was made part of the President's Decision (pages 47-83). Inasmuch as the Decision was approved by Congress, it (including the Agreement) has the legal status of a statute. The Agreement specifies the route of the ANGTS, and contains numerous conditions. Pursuant to the Agreement, our Commission has consulted with the National Energy Board of Canada in coordinating respective certification of the various ANGTS segments in the U. S. and Canada, including related imports of Canadian gas to support the "prebuilding" of the lower half of the system.

One other relevant item of legislation is Reorganization Plan No. 1 of 1979, which was submitted by the President to the Congress and not disapproved by the Congress. The Plan establishes the Office of the Federal Inspector, which reports directly to the President. The Inspector is responsible for monitoring the construction of the pipeline, and for coordinating all federal permitting and certification of it. The Plan transfers to the Inspector the Commission's Natural Gas Act Sections 3 and 7 jurisdiction to enforce the Commission's certificates and import authorizations issued to the ANGTS project sponsors.

Two categories of tariffs are involved. The project sponsors will own and operate the various segments of the ANGTS, but will not buy or sell the gas transported through it. The shippers will buy the gas at the Prudhoe Bay Field, ship it through the sponsors' facilities, and sell it somewhere at the other end of the pipeline. The sponsors will have tariffs authorizing charges to the shippers. The shippers will in turn have tariff provisions authorizing charges to their customers for the sale of the gas, which charges will include in some form reimbursement of the shippers for the transportation charges paid by the shippers to the sponsors, as well as reimbursement for the costs of purchasing the Prudhoe Bay Field gas.

Thus, for example, if a shipper buys gas at Prudhoe Bay for sale in Detroit, the shipper would incur separate transportation charges billed by the respective sponsors of the Alaska segment, the Canadian segment, and the Northern Border segment of the system. That shipper would request a tariff authorizing "flow through" to its customers of the full amount of transportation charges paid to the sponsors of each of the three pipeline segments through which the gas was transported, as well as the full cost of the gas itself.

The "flow through" issue is often referred to as "tracking" of charges. Tracking of gas purchase costs is authorized by the Commission's regulations, through purchased gas adjustment clauses. (See 18 C.F.R. 154.38.) Tracking of transportation charges has been authorized in certain instances on a case by case basis.

In Order Nos. 31 and 31-B, 2/ the Commission approved in principle the tracking by ANGTS shippers of transportation charges billed by U. S. certificated ANGTS project sponsors (*i.e.*, the sponsors of the Alaska, Northern Border and Western Leg segments), but reserved for later resolution the issue of tracking the charges of Foothills Pipe Lines (Yukon) Ltd. (Foothills), the sponsor of the Canadian segment. The unresolved tracking issues (including tracking of Foothills' charges that have been approved by the National Energy Board of Canada) are currently under study by the Commission's Alaskan Delegate, who is preparing a report to the Commission.

The sponsors' and shippers' initial tariffs are approved by the Commission pursuant to Section 7 of the Natural Gas Act upon issuance of the certificates. Alaskan Northwest's *pro forma* tariff was approved in Order Nos. 31 and 31-B. Section 7 provides a "public convenience and necessity" standard. While the Commission may establish initial rates that meet the more rigorous "just and reasonable" standard in Sections 4 and 5 of the Act, it is not required by law to do so. The Commission must only find that the initial rates are in the "public convenience and necessity" and may reserve for later determination what the "just and reasonable" rate should be.

2/ Order No. 31, "Order Setting Values for Incentive Rate of Return, Establishing Inflation Adjustment and Change in Scope Procedures, and Determining Applicable Tariff Provisions," issued June 8, 1979 in Docket No. RM78-12; Order No. 31-B on rehearing, issued September 6, 1979, in the same docket.

Section 7(e) of the Natural Gas Act gives the Commission authority to attach conditions to certificates. The courts have construed broadly the Commission's responsibility under the Natural Gas Act to condition certificates with respect to rate terms and other matters affecting the public convenience and necessity. See, e.g., Atlantic Refining Co. v. Public Service Commission of New York, 360 U.S. 378 (1959); FPC v. Hunt, 376 U.S. 515 (1964). But see Panhandle Eastern Pipe Line Co. v. F.E.R.C., 613 F.2d 1120 (D.C. Cir. 1979), cert. denied, 101 S. Ct. 247 (1980).

Section 4 of the Act requires that all rates and charges be "just and reasonable." After certification, all changes in the initially approved tariffs and rates must be filed with the Commission pursuant to Section 4. The Commission, pursuant to prescribed standards and procedures, may "suspend" such changes for up to five months pending a hearing. If the changes are suspended, the prior approved tariffs and rates remain in effect during the period of suspension. The changes may take effect after the suspension period but subject to refund (with interest) depending on the outcome of the hearing process on contested issues or other disposition by the Commission.

Section 5(a) of the Act authorizes the Commission to institute a proceeding on its own initiative, to consider the justness and reasonableness of a certificate holder's rates and tariffs, and to determine new rates or tariff provisions if the existing ones are determined to be "unjust, unreasonable, unduly discriminatory, or preferential." Such changes can only be prospective; in a Section 5 proceeding the Commission cannot suspend rates or order refunds.

Section 16 of the Natural Gas Act authorizes the Commission to modify or rescind its orders after they have been issued. This authority, under appropriate circumstances, may be utilized for a variety of purposes, ranging from correction of mistakes to modification of certificate terms and conditions in light of changed circumstances.

2. Nature of the Financing

The subject waiver is sought from Congress by the project sponsors of ANGTS in connection with the financing of the project. The financing mechanism selected by the sponsors has been referred to as "project financing." The propriety of project financing has been addressed by the Commission on a number of occasions, most recently in Ozark Gas Transmission System, FERC Opinion No. 125, Docket No. CP78-532 (July 28, 1981). In that opinion, the Commission described project financing generally as follows:

> Project financing differs from conventional financing mainly in connection with loan security. Security generally takes one of two forms in a conventional financing. First, the project sponsor, or borrower, has sufficient unencumbered assets that the lender feels secure in making a loan on the basis of the borrower's general credit. The loan agreement, in such cases, may require any of a number of different undertakings on the part of the borrower to maintain his creditworthiness. Secondly, if the borrower does not have unencumbered assets sufficient to secure the borrowing, the lender may require the pledge of specific assets to be funded by the borrowing as collateral for the loan. As Judge Litt pointed out in his initial decision on the Alaskan Natural Gas Transportation System, this is itself a kind of project financing. In this case the lender is secure in the knowledge that the borrower has put enough money into the project that the economic value of the project, less equity and liquidation costs, will yield sufficient funds for the lender to recover the principal value of the loan and accrued interest. A convenient example of this kind of financing is the mortgage of a building.
>
> A project financing, as it has come to be known in energy projects before the Commission, is a financing in which the general creditworthiness of the borrower is either insufficient or allegedly unavailable to secure the borrowing, and the underlying economic value of the assets to be financed are also insufficient to assure the lender that he will not lose his money. The latter inadequacy will presumptively obtain in the case of any pipeline financing, since the salvage value of the pipeline to be built should, in all cases,

> be less than the loan obligation. 21/ In this case, an optional financing vehicle is the stream of income to be generated by the project. However, that vehicle is only available in the event that the income stream can be assured whether or not the project should fail. Such assurance is sought in this case in the form of the so-called minimum bill. The minimum bill has been structured in a fashion which will yield sufficient revenues to cover debt service (both principal and interest payments), whether the project is successful or not. In the event the project were to fail, the minimum bill would be levied on the customers of the shippers in the form of a surcharge for gas they do not receive.
>
> ---
>
> 21/ In this regard Ozark's witness, Gary, states, 'Today we all recognize a mortgage on a pipeline is virtually worthless, except for one aspect, in making a legal investment.' Tr. 12/1064

Slip opinion, at 10-11 (footnotes omitted in part).

As the Commission pointed out in the Ozark case, substantial policy justification should be found in certificate applications before the Commission pursuant to which project financing is sought. In the case of the ANGTS, such justifications have already been considered by both the Executive and Legislative Branches of the Federal Government, as well as the Commission, and have been found sufficient to permit the project financing of the ANGTS. 3/

Some of the justifications have included the substantial amount of natural gas to be delivered by the project, the potential for displacement of large quantities of foreign oil, reduction of pressure on the U. S. balance of payments, net national benefits to both the U. S. and Canada, and the anticipated average cost of gas over the project life.

3/ See, generally, Federal Power Commission, Recommendation to the President, Alaska Natural Gas Transportation Systems (May 1, 1977).

3. Reason for the Proposed Waiver

The waiver has a rather singular purpose. It is intended to assure lenders for the project that the income stream which serves as security for their loans will not be reduced below the level necessary to retire the principal of the loan and to pay the interest thereon. It would accomplish this purpose by precluding the Commission from changing the rules of the game, so to speak, in a manner which would undercut the security for the loan. This objective would be achieved by withdrawing from the Commission its authority under the Natural Gas Act to change the project tariffs in such a manner as to reduce project revenues below the level necessary to service project debt. The request for the waiver evidences that certainty of the security is essential, *i.e.*, in this instance that the lenders will rely heavily and to their detriment on the orders of the Commission granting the certificate and establishing the tariffs as preconditions to the sponsors' take down of the construction loans.

All of the foregoing has been explicitly recognized by the Commission in FERC Order No. 31. 4/ In that order the Commission stated:

> The project sponsors have earnestly sought that this Order, especially as it relates to the tariff structure, provide assurance to prospective equity investors and lenders. The concern of the sponsors is wellfounded. The Commission fully recognizes that equity investors and lenders will make critical decisions respecting the financing of the construction of ANGTS in reliance on this Order.
>
> The Commission has articulated in great detail its rationale for this Order. Where reasoned alternatives were available, we have provided a thorough analysis of the issues and the basis for our conclusions. This thoroughness provides the investor's best security in relying on this Order.

4/ *Supra*, note 2, at 4 (mimeo).

The fact of the request for a waiver suggests that the project sponsors and the lenders feel that they need greater assurance than has been provided to date. The Chairman and I feel compelled to agree with that assessment. As the subsequent discussion and legal analysis shows, with the objective of "security" in mind, a waiver is clearly a far better assurance than an order of the Commission. For example, previous efforts by sponsors to secure additional certainty for lenders by attempting to obtain estoppel findings in Commission orders have been unsuccessful. 5/

5/ Applicants in the Great Plains case asked the Commission to make a very explicit estoppel case against itself by including certain statements in its order. Great Plains Gasification Associates, et al., FERC Opinion No. 69 (November 21, 1979) (reversed on other grounds, Office of Consumers' Counsel v. F.E.R.C., ___ F.2d ___ (D.C. Cir. 1980), Case No. 80-1303, decided December 8, 1980). The estoppel option will be discussed in the text, infra. In its initial brief to the Presiding Administrative Law Judge, Great Plains claimed the following:

> ". . . The lenders have indicated that they will require that the authorizations obtained [from the Commission] by the project companies contain [as a condition to take down of the loan for the project]:
>
> (1) A statement of the Commission's intention not to revoke or modify the tariff provisions approved by it for this project during the term of the bank loan;
>
> (2) A statement of the Commission's understanding that the lenders would not commit funds for this project without assurances that these provisions would continue in effect without modification during the term of the bank loan;
>
> (3) A statement of the Commission's intent to suspend the application as to this project of any future rule, order, or decision of general applicability which might affect the approved tariff provisions until after the conclusion of a full evidentiary hearing to determine the propriety and

(Footnote 5 continued on next page)

Important in the context of ANGTS financing is that a waiver would provide clear assurances and signals to foreign, as well as domestic, lenders. We are advised that a sizeable portion of the borrowing must be acquired from foreign investors because of legal lending limits and other institutional obstacles faced by domestic lenders.

4. Regulatory Risk

The regulatory risk perceived by lenders consists of two separate, but not unrelated, sets of events. They are: (1) that the Commission would change the tariffs initially approved on a claim of changed circumstances, and (2) that a subsequent Commission, composed of a majority with a different view of the public interest than the collective view of the Commission originally approving the tariffs, would change the tariffs to the detriment of the lenders in order to reflect their different views. The Commission's ability to change the tariffs in either of these events is not clear as a matter of law. It is not unlimited, but our analysis indicates that it is fairly broad. The effect of the proposed waiver would be to eliminate in material part the Commission's options -- to the extent they exist -- to change the tariffs in either of these cases.

5/ Footnote continued from prior page

> lawfulness of such Commission action as it affects the tariff provisions on which the financing is based . . . ." Initial Brief of Great Plains Gasification Associates and the Customer Pipeline Companies, Docket Nos. CP78-391, et al., January 29, 1979, at 70-71.

> Five other admissions were sought from the Commission, but those quoted are exemplary of what the lenders sought. Both the law judge and the Commission refused to provide them. See Opinion No. 69, at 63.

> Similar estoppel findings were requested by the ANGTS sponsors in the proceeding that culminated in Order No. 31; however, they were refused in favor of the language quote at page 10, supra. As discussed hereafter, it is questionable whether such findings would achieve the desired or intended result.

5. Constitutional Question

Implicit in the questions articulated in your letter is the issue of whether the waiver is a reasonably necessary mechanism to provide the lenders with the certainty they seek. The threshold issue, in this respect, is whether there is any constitutional bar to the Commission taking the kind of action described in the subsequent paragraphs. If such a bar exists, the waiver would not be necessary. Our research indicates that this question has not been authoritatively answered by the courts. That is, there are no clear constitutional limits regarding the Commission's power to change tariffs, where parties have substantially changed position in reliance on such tariffs, and the Commission had prior, actual knowledge of such reliance. The Chairman and I believe that a respectable case could be made that it would violate basic constitutional principles of due process for the Commission to change tariffs not explicitly conditioned to permit change, when the Commission is fully aware that the tariffs form the basis of project financing, and the changes will in one way or another undercut that basis. However, there is an absence of authority to support such a proposition. 6/

6/ The question whether legislative or quasi-legislative action with retroactive effect works to deprive an owner of property without due process is somewhat analogous. Unfortunately, there are no clear principles, and the cases go both ways. See generally, text and cases collected in Cong. Research Service of Library of Congress, The Constitution of the United States of America: Analysis and Interpretation (1972), at 1165, et seq.

A case strongly suggestive that the principles of estoppel do not apply to federal agencies is Federal Crop Insurance Corp. v. Merrill, 332 U.S. 380 (1947). In that case, certain farmers were assured by a local agent of the federal corporation that a certain type of crop could be insured. In fact, rules of the corporation provided that such crops could not be insured, although neither the agent nor the farmers had actual knowledge of the regulations. Relying on the agent's advice, the crops were planted and subsequently destroyed.

(Footnote 6 continued on next page)

6/ Footnote continued from prior page

In holding that the farmers could not collect insurance for the crops despite the payment of premiums therefor and the inducement of the local agent's assurances, the Court indicated that knowledge of the rules contrary to the agent's advice would be imputed to the farmers because the rules were published in the Federal Register. Despite the difference of the facts in the Merrill case (farmers had relied on apparent rather than actual authority), the Court used strong language to suggest in dicta that the government corporation would be treated as an agency of the United States and would be immune from doctrines like estoppel. Id. at 384-85.

These dicta have led one commentator to take the following position:

> Merrill indicates that estoppel will not be used to protect an individual who has changed his position in reliance on administrative advice: 'It is settled law that no estoppel can arise against the government.' [Citing, Chapman v. Santa Fe Pac. R., 198 F.2d 498, 519 (D.C. Cir. 1951) (dissenting opinion), cert. denied, 343 U.S. 964 (1952).] B. Schwartz, Administrative Law (1976), at 133, et seq.

Professor Schwartz agrees with the Merrill-type result when the agency has acted in excess of its statutory authority. However, he goes on to say:

> . . . Both reason and policy argue that prejudicial reliance warrants invoking the doctrine of estoppel against the government in other cases: 'when the sovereign becomes an actor in a court of justice, its rights must be determined upon those fixed principles of justice which govern between man and man in like situations.' Id., at 135 (footnote omitted), citing Ritter v. United States, 28 F.2d 265, 267 (3d Cir. 1928).

(Footnote 6 continued on next page)

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The following cases support Professor Schwartz's policy proposal: Brandt v. Hickel, 427 F.2d 53, 56-57 (9th Cir. 1970); Chapman v. El Paso Natural Gas Co., 204 F.2d 46, 53-54 (D.C. Cir. 1953); United States v. Lazy FC Ranch, 481 F.2d 985, 988-989 (9th Cir. 1973); Oil Shale Corp. v. Morton, 370 F. Supp. 108, 124-127 (D. Colo. 1973).

The decision in the Lazy FC Ranch case, supra, indicates that a line of federal estoppel cases may be emerging, and that such is required by elementary notions of fairness. 481 F.2d at 989. The Chairman advises that his view is consistent with that of Professor Schwartz and the Court in Lazy FC Ranch. However, absent an authoritative pronouncement on the matter by the United States Supreme Court, or specific federal legislation, I cannot render an opinion as General Counsel of the Commission that the Commission would in all or substantially all cases be estopped by its orders from changing the ANGTS tariffs in such manner as to impair the underlying security for the financing of the ANGTS. In my judgment, the best opinion that could be rendered would simply agree that the Commission is constitutionally prohibited from setting a confiscatory rate of return. As stated by the Supreme Court in Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia, 262 U.S. 679, 690 (1923):

> Rates which are not sufficient to yield a reasonable return on the value of the property used at the time it is being used to render the service are unjust, unreasonable and confiscatory, and their enforcement deprives the public utility company of its property in violation of the Fourteenth Amendment.

See also, F.P.C. v. Hope Natural Gas Co., 320 U.S. 591, 603 (1943). As the subsequent discussion reveals, short

(Footnote 6 continued on next page)

6. Statutory Question

The foregoing is not to suggest that there are no Supreme Court cases dealing with regulatory estoppel. To the contrary, there are two cases of considerable relevance; however, both are based on interpretations of the enabling legislation of other agencies. In the first of these, United States v. Seatrain Lines, 329 U.S. 424 (1946), the Court held that the Interstate Commerce Commission lacked the authority to alter the certificate of a water carrier on its own motion. The holding was based on the express statutory language which permitted such action with respect to motor carriers, and the absence of correlative statutory authority in the case of water carriers, in the Interstate Commerce Act.

6/ Footnote continued from prior page

of this constitutional limitation, the Commission has considerable latitude in the exercise of its jurisdiction under Sections 4, 5, 7 and 16 of the Natural Gas Act.

The fact that the lenders have induced the project sponsors to ask for the waiver may well indicate that an unqualified legal opinion cannot be obtained from lenders' counsel to the effect that a constitutional bar exists to provide an estoppel defense. A similar conclusion may be deduced from the request for estoppel admissions in the Great Plains case, supra, note 5.

In Civil Aeronautics Board v. Delta Air Lines, Inc., 367 U.S. 316 (1961), the Supreme Court considered a similar question. The Court determined that Section 401(g) of the Federal Aviation Act prohibited the CAB from altering a certificate of public convenience and necessity, even where the certificating order purported to reserve jurisdiction prior to certification to make summary modifications pursuant to petitions for reconsideration. Reaching this result, the Court's analysis was founded on the plain meaning of the language in the enabling statute and its legislative history.

The Delta case is of particular importance to the subject of this memorandum for two reasons. First, the Court clearly explained the nature of the problem with the following statement:

> Whenever a question concerning administrative, or judicial, reconsideration arises, two opposing policies immediately demand recognition: the desirability of finality, on the one hand, and the public interest in reaching what, ultimately, appears to be the right result on the other [footnote omitted]. Since these policies are in tension, it is necessary to reach a compromise in each case . . . . Id. at 321.

The second key element of the Delta case is the recognition by the Court that the limitations placed on the CAB under the Federal Aviation Act resulted from Congressional concern during the passage of its predecessor, the Civil Aeronautics Act of 1938, over the reliance on, and consequent expenditure by airlines of large sums of money on the basis of the CAB's certificate (route) decisions. In this connection, the Court stated:

> In short, our conclusion is that Congress wanted certificated carriers to enjoy 'security of route' so that they might invest the considerable sums required to support their operations; and, to this end, Congress provided certain minimum protections before a certificated operation could be cancelled. We do not think it too much to ask that the Board furnish these minimum protections as a matter of course, whether or not the Board in a given case might think them meaningless. It

might be added that some authorities have felt strongly enough about the practical significance of these protections to suggest that their presence may be required by the Fifth Amendment. See *Seatrain Lines v. United States*, 64 F. Supp. 156, 161; *Handlon v. Town of Belleville*, 4 N.J. 99, 71 A. 2d 624; see also 63 *Harv. L. Rev.* 1437, 1439, *Id.*, at 331-332.

7. *The Natural Gas Act*

The *Seatrain* and *Delta* cases teach that the starting point in determining the practical necessity of the waiver as a security device is the language of the relevant enabling statute, the Natural Gas Act. Sections 4 and 7 are relevant, but the key provisions are Sections 5(a) and 16. Section 16 reads in pertinent part:

> The Commission shall have power to ... prescribe, issue, make, amend, and rescind such orders, rules or regulations as it may find necessary or appropriate to carry out the provisions of this act.

Section 5(a) provides, in pertinent part, that if the Commission:

> ... *[S]hall find that any rate, charge, or classification demanded, observed, charged, or collected* by any natural gas company in connection with any transportation or sale of natural gas, subject to the jurisdiction of the Commission, *or that any rule, regulation, practice or contract affecting such rate, charge, or classification is unjust, unreasonable, unduly discriminatory, or preferential, the Commission shall determine the just and reasonable rate, charge, or classification rule, regulation, practice, or contract to be thereafter observed* and in force, and shall fix the same by order. [emphasis supplied]

These statutory pronouncements are mandatory as opposed to precatory. The broad language of Section 16, when employed in conjunction with Section 5, has permitted the Commission to alter and amend conditions to certificated service with full approval by the courts. Section 5(a) has been interpreted as giving the Commission authority to alter the terms and conditions of certificated service even though the affected parties, acting alone, could not have changed them. F.P.C. v. Louisiana Power and Light Co., 406 U.S. 621, 646-647 (1972). In Opinion No. 754-A, Docket No. RP71-119, issued August 17, 1976, aff'd on other grounds, Hercules, Inc. v. F.P.C., 559 F.2d 1208 (3rd Cir. 1977), the F.P.C. concluded, with court approval, that it could exercise its Section 5 authority to promulgate new terms and conditions attached to certificates authorizing initial service.

The combined effect of Sections 5(a) and 16 is to require the Commission to amend terms and conditions of a certificate if those terms and conditions prescribe tariff provisions subsequently found to result in rates or charges which are not just and reasonable. As the United States Court of Appeals for the District of Columbia Circuit stated in American Smelting and Refining Company v. F.P.C., 494 F.2d 925, 940-941 (1974), cert. denied sub nom., Southern California Gas Co., et al., v. F.P.C., 419 U.S. 882 (1974), once the Commission finds that an existing rate or charge is unjust or discriminatory, 7/ it "must prescribe the remedy for that condition." 8/ If the existing illegal rate or charge is the result of the operation of a certificate condition, the remedy clearly will lie in the revocation or alteration of the order prescribing that condition, and thus the certificate itself.

7/ The Commission's authority to find that a tariff (previously determined to be just and reasonable) no longer functions in a reasonable manner has been upheld by the U.S. Court of Appeals for the District of Columbia Circuit in Pacific Gas Transmission Co. v. F.P.C., 536 F.2d 393 (1976).

8/ The D.C. Circuit has also taken this position in Pacific Gas Transmission Co. v. F.P.C., supra., where it stated at page 396 that "[a]fter such a finding, the Commission had not only the power but a solemn duty to take immediate action."

Furthermore, the unique nature of the Alaskan Northwest tariff provisions may subject them to amendment on another basis. Because they were developed in a rulemaking, the provisions of Order No. 31 arguably are not the result of the Commission acting in a judicial capacity, but in a legislative one, formulating and applying policy. The distinction is important because where the Commission acts in the former capacity, applying law or policy to past facts, a decision on the merits as to a disputed, and litigated issue of fact becomes final. United States v. Utah Construction and Mining Co., 384 U.S. 354, 421-422 (1966); Davis, Administrative Law Treatise, §18.09 (1970 Supp.). In the latter case, the Commission is free to take appropriate steps without being bound by its prior actions. Permian Basin Area Rates Cases, 390 U.S. 747, 789 (1968); Public Service Commission, State of New York v. F.P.C., 511 F.2d 338, 353 (D.C. Cir. 1975). The policy determination in this case has been that the public convenience and necessity required the assurances to investors in the ANGTS provided for by the tariff provisions of Order No. 31. Arguably, the Commission has determined that as a matter of policy, at least under present circumstances, a tariff designed to meet the conditions of Order No. 31 will be just and reasonable. The same reasoning might also apply to the shipper tracking provisions in the event that such provisions are adopted by the Commission through rulemaking procedures. Although it is questionable whether the rulemaking-adjudication distinction would be given great weight in the context of the facts at hand, it might be enough to convince a future Commission that it could, within the law, conclude that a different policy determination better serves the public interest.

From the foregoing it is clear that there is a plausible case for Commission authority to subsequently alter the tariff conditions of Alaskan Northwest's certificate, relying on Sections 16 and 5(a) of the Natural Gas Act and judicial pronouncements authorizing agencies to make changes in policy. The foundation for that case is the general principle that a policy determination made by a present Commission cannot preclude a future Commission from making a policy determination to the contrary, provided that in doing so it adequately explains the reasons for its new position, Consolidated Gas Supply Corp. v. F.P.C., 520 F.2d 1176 (D.C. Cir. 1975), whether or not there has been a change of circumstances. Greater Boston Television Corp. v. F.P.C., 444 F.2d 852 (D.C. Cir. 1970). A corollary to that principle is that a present Commission cannot bind a future Commission so as to preclude the prospective operation of Section 5. Optional Procedure for Certificating New Producer Sales of Natural Gas, 48 F.P.C. 218, 223 (1972); Pacific Gas Transmission Co. v. F.P.C., supra. These rules are analogous to those applicable to the legislature: namely, this Congress cannot preclude legislation, or amendments to legislation, by the next Congress.

8. Reasonableness of the Waiver Request

This line of analysis suggests several important conclusions, which bear ultimately on the recommendation of this memorandum. First, the presence or absence of a constitutional ban to the impairment by this or a future Commission of the tariffs upon which the lenders will rely is unclear. Second, there appears to be no statutory bar, such as was found to exist in the Seatrain and Delta cases, which would preclude the Commission from changing the tariffs. Even though it is clear that commentators, the Courts, at least by way of dictum, and the past and probably current Commissions accept the principle that elementary notions of justice should allow the project lenders to rely in good faith on the decisions of the Commission in making their loans, the request of the project sponsors indicating their "desires . . . to have these provisions waived" appears to be based on a concern as to the certainty of the federal-estoppel doctrine under the Natural Gas Act. The questions that remain are those that are directly raised by your letter. They ask in essence whether there are either historical or predictable future facts which support or impugn the legislative request. That is, assuming that the waiver request is not patently unreasonable, is there a historical legal perspective from which the Congress could judge the future and find sound public reasons to grant or deny the waiver.

9. Past Commission Actions

For the moment I will defer to subsequent paragraphs the question of "the full implications of the waiver" and turn to your second specific question: whether there have been past Commission actions which justify the desires of the sponsors to have the subject sections of the Natural Gas Act waived. In this connection, the following contains a summary of recent cases, representative of past Commission actions, which involved issues of claimed detrimental reliance. Having done so I will leave it to the Subcommittee to conclude from these decisions whether or not the project sponsors' request is justified.

A. Jurisdiction: Distrigas Corporation, et al. v. F.P.C., et al., 495 F.2d 1057 (D.C. Cir. 1974), cert. denied, 419 U.S. 834 (1974).

This proceeding involved, in pertinent part, a filing by Distrigas Corporation and its affiliates, Distrigas of New York Corporation and Distrigas of Massachusetts, (Distrigas) which requested the Federal Power Commission to grant Distrigas the authority under Section 3 of the Natural Gas Act to import liquefied natural gas (LNG) from Algeria. 9/ The filing also contained a request by Distrigas for the FPC to issue a disclaimer of the Commission's jurisdiction under Section 7 of the Natural Gas Act. 10/

9/ Following regasification, more than 80 percent of the gas was to be sold in the state of importation to distributors and direct customers and the remainder to distributors in neighboring states.

10/ The imported LNG was to be delivered and regasified at facilities at Staten Island, New York and Everett, Massachusetts.

The Commission in a three to two vote granted the requested Section 3 authorization without condition but, noting that this was a novel situation, reserved the right to add conditions in the future if circumstances should change. The Commission noted that Section 3 of the Natural Gas Act specifically provided for such future amendments. However, the Commission did not find Section 7 jurisdiction over the regasification facilities and service nor over the facilities and services involved in the sale of the regasified LNG in the state of importation. 11/ The result of the decision was that there was no jurisdiction under Section 7 or Section 3 (by way of conditions to the import authorization) over the regasification facilities and service nor over the intrastate facilities and service. The Commission indicated its hope that this disclaimer of jurisdiction would make the project more attractive to private investors and "lead to more gas at a lower price to the consumer than if [the Commission] controlled every detail and decision related thereto." Two Commissioners dissented, arguing that the Commission should take jurisdiction under Sections 3 and 7 of the Natural Gas Act over the regasification facilities and the "intrastate" facilities.

Following the Commission's decision, Distrigas "assertedly in reliance on the Commission's limited jurisdictional disclaimer, . . . proceeded to construction of its Everett and Staten Island facilities, expending very substantial sums on each." In a new filing, Distrigas also applied for Section 3 authorization to import significant additional quantities of natural gas and for Section 7 authorization to sell these additional volumes, as well as certain of the originally authorized volumes, in interstate commerce.

11/ The Commission did take jurisdiction under Section 7 of the Natural Gas Act over the sales of gas which was ultimately destined for resale in interstate commerce. However, it found that jurisdiction over such sales attached only at the tailgate of the regasification plant.

Meanwhile, at the Commission two of the original three person majority had left and had not been replaced. Therefore, the two dissenting Commissioners were now a majority. In response to Distrigas' applications, they found that circumstances had changed since Distrigas' original application had been acted upon by the Commission. Specifically, they stated that the original Distrigas application proposed new and increased sales for resale in interstate commerce. Therefore, the Commission held that Section 7 certification was mandated for all of Distrigas' facilities.

On appeal, Distrigas argued, among other things, that once the Commission's previous decision on the jurisdictional issue was final and Distrigas had subsequently acted in reliance on that decision by (1) contracting with its customers and (2) constructing its facilities, the Commission was foreclosed from changing its mind and asserting jurisdiction where it had previously declined to do so. Distrigas cited the Seatrain case, 12/ where the Supreme Court had overturned the Interstate Commerce Commission's attempt to revoke a certificate previously granted to a water carrier.

The Court found that the Commission had the authority to issue the order it had issued under Section 3 of the Natural Gas Act but remanded for additional proceedings before imposition of any requirements to certification under Section 7. The Court distinguished Seatrain on the basis of lack of statutory authority in that case, and noted that both Section 3 of the Natural Gas Act as well as the Commission's previous order specifically contemplated changes and amendments. The Court further found that if Distrigas had relied on an interpretation of the original Commission order to the contrary (i.e., that the original Commission order granted Distrigas a permanent immunity from regulation), Distrigas' reliance was misplaced.

12/ Supra, at 15.

As part of its basis for rejecting the estoppel argument, the Court concluded that Distrigas' claim of injury was at that point hypothetical in nature since Distrigas had not demonstrated that the Commission would not ultimately authorize Distrigas' proposal.

On remand, the Commission granted Distrigas' application subject to certain conditions.

The Distrigas case is one where the Court approved a changed Commission's reversal of a previous Commission's ruling upon which the company and its lenders had arguably relied to their detriment. As a basis for that approval the Court stated, "any 'right' to non-regulation that the Commission's previous decision can be supposed to have vested in Distrigas was entirely contingent on the Commission's continuing to view such non-regulation as in the public interest." However, two facts tend to distinguish Distrigas from the ANGTS. One is the conditions cited by the Court in the original Section 3 authorization, which arguably placed Distrigas and its lenders on notice that the rule could change. The other distinguishing fact was that the Court found that the Commission's decision had not yet injured Distrigas and that it might not in the future. Presumptively, the matter was resolved at the Commission level in a way which did not adversely affect Distrigas or its lenders. Nonetheless, one could conclude that the uncertainty caused by the Commission's reversal is the type of action the ANGTS lenders seek to protect themselves against.

B. Cost of Service Tariff: Pacific Gas Transmission Co. v. F.P.C., et al., 536 F.2d 393 (D.C. Cir. 1976), cert. denied, 429 U.S. 999 (1976).

This case involved a Commission order which, pursuant to Section 5(a) of the Natural Gas Act, changed in part Pacific Gas Transmission Company's (PGT) cost-of-service tariff after a full hearing. Prior to the Commission decision, PGT had been permitted to adjust its rates automatically on a monthly basis to reflect all changes in its costs, including amounts for gas purchased from Canadian producers for resale in the United States. This tariff had been in effect since PGT was first authorized to import gas from Canada in 1960. 13/

In 1974 and 1975, after a hearing under Section 5(a) of the Natural Gas Act, the Commission modified PGT's cost-of-service tariff to provide that changes in the cost of gas purchased by PGT from Canadian suppliers could be passed on to PGT's customers only after PGT had applied for the rate increase pursuant to Section 4 of the Natural Gas Act, and after any suspension period imposed by the Commission thereunder. The Commission revised the tariff to provide that such filings would be subject to suspension by the Commission pursuant to Section 4 of the Natural Gas Act and, if suspended, subject to refund and possible reduction as provided in Section 4 of the Natural Gas Act. The Commission justified the revised tariff by stating that Canadian authorities had recently begun to require that significantly increased prices be charged for Canadian gas sold for resale in the United States. Furthermore, Canadian authorities had changed their pricing policy by referencing it to prices for alternate energy sources (primarily oil products) in markets served by Canadian gas. This formula change signaled further significant increases in the cost of gas purchased by PGT from Canadian producers (as much as four times higher than prior to the Section 5 proceeding). The Commission found that these changed circumstances rendered PGT's existing tariff "unjust and unreasonable" and required prior Commission review of rate increases for Canadian gas before they could be passed on to consumers in the United States.

13/ See Pacific Gas Transmission Company, 24 FPC 134 (1960).

On appeal, PGT argued in part that the Commission-ordered modification of its tariff could result in delay or outright denial of its recovery of increased Canadian purchased gas costs which, in turn, would financially destroy PGT. PGT also argued that the Commission was without power to modify the cost-of-service tariff which a previous Commission had approved in 1960 when PGT was originally authorized to commence the importation of Canadian natural gas.

The Court denied all of PGT's claims and affirmed the Commission order and its action revising the tariff under Section 5(a). In support of its holding, the majority noted that the Commission had granted prompt authorization under Section 4 for Canadian gas rate increases which took effect after the disputed tariff change. The majority opinion indicated that failure of the Commission to include such increases might well be to "abdicate" its responsibilities under Section 4. However, Judge Bazelon in a dissenting opinion directed considerable criticism towards the Commission for injecting uncertainty into PGT's financial position. As the dissent stated: ". . . the FPC concedes that had PGT been required to absorb even the initial 32 cent price increase for a short period of time it would have been driven out of business, and 2,000,000 consumers would have been deprived of 40% of their gas supply." (536 F.2d at 397.)

C. Advance Payments (30 day rule): Tennessee Gas Pipeline Co., et al. v. F.E.R.C., et al., 606 F.2d 1094 (D.C. Cir. 1979), cert. denied, 447 U.S. 922 (1980); Natural Gas Pipeline Co. v. F.E.R.C., 590 F.2d 664 (7th Cir. 1979); United Gas Pipe Line Co. v. F.E.R.C., 597 F.2d 581 (5th Cir. 1979); Trunkline Gas Co. v. F.E.R.C., 608 F.2d 582 (5th Cir. 1979).

These cases involve interstate natural gas pipelines which, pursuant to a series of Commission rulemakings, including most notably Order Nos. 465 and 499, made interest-free loans (advance payments) to natural gas producers as exploration and development investments which were to be repaid by future delivery of gas. Pursuant to these Commission Orders the pipelines were allowed to include such advances in their rate bases, for rate of return purposes, as exploration and development investments. This policy was advanced by the Commission as an incentive for the addition of gas supplies. The Commission's rulemaking orders spelled out in detail the requirements for inclusion of advance payments in Account 166. However, insofar as the "timing" of the expenditures by the producers versus the date of the pipelines investment, the Commission was silent, except to the extent the orders stated that amounts included in Account 166 could receive favorable rate base treatment where they were found to be "reasonable and appropriate." Subsequent to these Orders, pipelines invested at least $5.5 billion in "advance payments" with producers. However, after these investments had been made, the Commission, acting under FPC Order No. 465, pursuant to the "reasonable and appropriate" language, disallowed rate base treatment for certain advances because they were made to the producers and included in the pipelines' rates more than "thirty days" before they were spent by the producers. As a result large amounts of advance payments were retroactively disallowed on a deferral basis for inclusion in pipeline companies' rate bases.

On appeal to three different Circuit Courts, the pipelines claimed serious injury and voiced loud complaints that the general language of Order Nos. 465 and 499 had offered no notice of the new specific timing rule imposed by the Commission. As acknowledged by the D.C. Circuit Court, ". . . substantial sums were involved and deferral has resulted in considerable losses for the pipelines' stockholders." (606 F.2d at 1108.)

The pipelines argued that, at the invitation of the Commission rulemaking orders, pipelines were encouraged to make advance payments to promote exploration and development of natural gas reserves for the interstate market. Pursuant to those orders, the pipelines argued, they had invested substantial sums of money in the advance payment program. Thus, they argued that it was unfair and illegal for the Commission, pursuant to the reasonable and appropriate standard, to establish in individual pipeline rate cases decided after the rulemaking orders had issued and after the advance payments contracts had been executed, that rate base treatment of advance payments would not be allowed more than thirty days in advance of when they were spent by the producers.

The three separate circuit courts reversed the Commission orders decided on this basis. However, the D.C. Circuit in Tennessee rejected the pipelines' claims of retroactive ratemaking and detrimental reliance and directed the Commission on remand to develop a timing relationship supported by substantial evidence. The Fifth Circuit in the United and Trunkline cases and the Seventh Circuit in the Natural case found that it was impermissible retroactive ratemaking to impose a timing requirement on Order No. 465 advances and that the pipelines had relied to their detriment on the absence of a timing requirement in the Order when they made advances to producers. Therefore, they reversed the Commission decision on the Order No. 465 advances and directed inclusion of the designated amounts in the respective pipelines' rate bases. Since Order No. 499 contained at least an ambiguously general reference to a timing relationship, those portions of the Commission decision were remanded because of a lack of substantial evidence supporting that portion of the Commission orders. Although the Commission was reversed in these cases, language from the Court's opinion in Tennessee is illustrative of the "regulatory risk" inherent to an industry subject to the Commission's jurisdiction.

> We find that petitioners' arguments in support of their interpretation (of estoppel facts) are undercut by consideration of the character of the advance payment program as an experimental departure from well accepted and understood regulatory law. (606 F.2d at 1108.)

* * *

> One of the risks incurred by the pipelines has been the 'regulatory risk' that an experimental program such as advance payments might miscarry, and that administrative readjustment would not prevent substantial adverse impact. (606 F.2d at 1120.)

D. Dedication of Gas Reserves: Air Products & Chemicals, Inc. v. F.E.R.C., ___ F.2d ___ (5th Cir. 1981), Case No. 78-2011, decided July 16, 1981.

This case involves a Commission order which ended a prior Commission policy under the "Chandeleur incentive doctrine" (of approximately seven years duration) which allowed offshore natural gas producers to reserve for their own use a portion of gas reserves which otherwise would have been dedicated to the interstate market. The prior policy had allowed these reservations as an incentive to producers to expedite the exploration and development of offshore reserves of natural gas. The Commission, in its final order, found that the reservation incentive was no longer needed because, among other things, the interstate market was suffering severe curtailments and thus the gas which would be reserved by the producers was needed to serve the interstate market.

On appeal the producers argued, among other things, that they relied to their detriment on the prior FPC policy allowing reservations and that it was unfair and illegal for the Commission to reverse its policy in an adjudicated case instead of a rulemaking proceeding to be applied prospectively.

The Court remanded the case to the Commission because of the improper way in which the Commission relied on extra-record evidence to support its decision, but it rejected the producers' arguments of detrimental reliance on the prior Commission policy. The Court noted that the old Commission policy was continually attacked by consumer groups in various cases and that it was, at its inception, described by the FPC as experimental. In sum, the Court found that the policy was never "well established" enough to have caused detrimental reliance thereon by producers or anyone else. The Court noted further that the producers were not precluded from selling the gas in interstate commerce for a fair price but rather were prohibited from reserving the gas for their own use.

E. Unsuccessful Project Costs: Tennessee, et al. v. F.E.R.C., 606 F.2d 1094 (D.C. Cir. 1979), cert. denied, 447 U.S. 922 (1980).

This proceeding involved, among other things, an attempt by Transcontinental Gas Pipe Line Corporation (Transco) to recover costs associated with four unsuccessful projects related to the production of synthetic natural gas (SNG). The Commission denied recovery of these costs because they were not "used and useful" in providing service and could not be charged to ratepayers. 14/

On appeal, Transco argued that it had spent $22 million on these ultimately unsuccessful projects in purported reliance on a Commission policy allowing recovery of the costs of the projects if they proved to be unsuccessful. The Court found that the Commission had no policy allowing recovery of these costs and then affirmed the Commission's decision.

14/ A possible concern of the lenders is that a dogmatic application of the "used and useful" maxim would result in similar treatment of the ANGTS if the project were to suspend operation after completion or, through no fault of the sponsors they were unable to commence operation after completion. The need for assurances to the contrary (the minimum bill) provides a major impetus for project financing as opposed to conventional financing.

Other cases in which the Commission is currently under criticism for assertedly changing policies to the detriment of jurisdictional companies include (i) applications for rehearing of Commission Opinion No. 90 15/ and Order No. 94, 16/ and (ii) the oil pipeline cases where revision of the ratemaking methodology formerly employed by the Interstate Commerce Commission is under consideration. 17/

However, these cases should not be taken as a suggestion that the Commission never accords finality to its orders. In Texaco, et al., Docket No. CI77-329, et al., 13 FERC ¶ 61,222 (1980), for instance, a United States Senator filed a pleading on July 21, 1980, seeking to reopen a case settled on February 10, 1978. Part of the Senator's argument was that changed circumstances justified reopening the case, but the Commission refused to grant the intervention and declined to disturb its earlier order.

Arguably, cases such as those described above represent a possible "justification" or reason why the sponsors have now sought the waiver from Congress. At the same time, however, these decisions and others of a similar nature have generated some sympathy in the courts and have begun to establish the proposition that estoppel is available as a defense against the government if the government's wrongful conduct threatens to work a serious injustice and if the public's interest would not be unduly damaged by the imposition of estoppel. Lazy FC Ranch, supra, 481 F.2d at 989. Nevertheless, because the estoppel doctrine has not been fully developed under the Natural Gas Act, it is fair to state that only a waiver would provide the lenders with the same sense of legal certainty that a firmly established "regulatory estoppel doctrine" would afford these investors. Whether this legal uncertainty "justifies" the requested waiver is a value judgment best left to Congress. With this in mind, it is appropriate to consider your questions as to hypothetical situations creating injury to project participants.

15/ 12 FERC ¶ 61,080 (1980).

16/ 12 FERC ¶ 61,080 (1980); FERC Statutes and Regulations, ¶ 30,178 (1980).

17/ Trans Alaska Pipeline System (TAPS) (Phase I), Docket Nos. OR78-1, et al.; Williams Pipe Line Company (Phase I), Docket Nos. OR79-1, et al.

10. Hypothetical Injuries to Project Participants

Our analysis has produced four general sets of hypothetical circumstances which might induce a Commission response changing the tariff provisions related to the project, absent the waiver. They are:

(1) a changed economic environment resulting in materially different costs of capital (i.e., interest rates and return on equity) from those extant at the time of initial approval;

(2) changed amounts of natural gas available to be transported resulting in a materially different economic life for the transportation system;

(3) changed economics of the gas to be delivered by the system, relative to other sources of energy supplies, warranting an altered revenue pattern in order to avoid more serious economic dislocations; and

(4) premature project failure.

As a consequence of these general events, the following hypothetical Commission actions might take place:

(a) Upon a finding of changed circumstances the Commission could determine, pursuant to Sections 5, 7 and 16 of the Natural Gas Act, that the cost-of-service tariff (which provides that Alaskan Northwest's rates will be adjusted twice a year by a formula that requires Alaskan Northwest to change its rates to reflect actual costs in its charges to shippers) was no longer appropriate. The Commission could then require Alaskan Northwest to charge a stated rate, such as a flat rate per MMBtu of natural gas transported, and require a filing pursuant to Section 4 of the Natural Gas Act to be made prior to the effectuation of any increase in that stated rate. The rate increase filing could be suspended for up to five months, and the proposed rates thereafter collected could be subject to possible reduction and refund with interest.

The risks to Alaskan Northwest in the event of a Commission-ordered change to a stated rate form of tariff involve the adverse economic impacts resulting from the regulatory lag attendant to putting into effect a proposed rate increase under Section 4 of the Natural Gas Act. The regulatory lag consists of the sum of: (1) the time necessary to prepare a Section 4 rate filing plus (2) the one-month notice requirements between the time the filing is made and the earliest possible effective date (absent a waiver of the notice requirements) plus (3) a suspension period of up to 5 months beyond the proposed effective date. During the lag period, Alaskan Northwest sponsors would not be able to recover all of the costs previously covered by operation of the cost-of-service tariff.

As noted previously, the FPC modified in part the cost-of-service tariff of Pacific Gas Transmission Company to require Section 4 filings to recover increased Canadian purchased gas costs. However, the Court concluded that the result was justified inasmuch as the Commission had, pursuant to Section 4, allowed a "non-niggardly" flow-through by the company of increased gas costs, notwithstanding the dissent's concern that delay would have resulted in adverse consequences.

(b) Alternatively, the Commission could decide at a future time to leave the cost-of-service tariff intact but remove the minimum bill (which guarantees recovery of actual operation and maintenance expenses, actual current taxes and debt costs). 18/ The consequence of this action could --

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18/ The minimum bill provides for the recovery of actual operation and maintenance expenses, actual current taxes, and all amounts necessary to service debt including interest and scheduled retirement of debt. Under no circumstances would debt service be impaired.

Recovery of equity investment and return on equity investment is, however, treated differently. The "90 percent billing adjustment ratchet" reduces charges to eliminate return on equity investment and associated taxes for any service diminution below 90 percent of tendered gas. This tariff provision would be applicable in instances when the reduction in service for any one month was greater than 10 percent. The reduction in charges to reduce the return on equity and

(Footnote 18 continued on next page)

be that during periods of interruption exceeding thirty days Alaskan Northwest would bear all of the financial consequences of the interruption because it would not be able to charge the shippers for any costs incurred during the period of interruption. 19/

(c) Another hypothetical involves a situation wherein the ANGTS project fails some time after the date construction had commenced. Assume further that upon review of

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18/ Footnote continued from prior page

associated taxes would be proportional to the percentage of volumes tendered but not transported. The pipeline would be permitted to recoup any such billing adjustments by transporting volumes in excess of the contract level in subsequent months. The charge for such "Billing Adjustment Gas" transportation would be computed by using the same billing adjustment (i.e., the same dollar per Dekatherm). Any service reduction below 100% but more than 90% would be accounted for as "No Billing Adjustment Gas." As such, this gas would be transported in subsequent months at no added charge to the shipper.

The "90 percent billing adjustment ratchet" also operates during periods of interruption of service. It ceases to be operative, however, for any period of total cessation of service for more than 30 days. Beginning with the thirty-first day of any total cessation of service, the portion of the charges attributable to "equity costs" would be collected subject to refund pending a showing by Alaskan Northwest that it should be permitted to retain equity costs collected during the period of cessation of service. Equity costs, in this context, are defined to be "that portion of depreciation expense not necessary for debt service and associated taxes." (Order No. 31, at 181-182.)

The above discussed ANGTS tariff provisions differ substantially from lower-48 pipeline tariff provisions in a number of important respects. It is fair to state that the ANGTS tariff contains unique, "first-of-a-kind", provisions which have not been previously granted by the Commission.

19/ This assumes that in eliminating the minimum bill the Commission would also eliminate the opportunity to collect equity costs subject to refund and to make a showing pursuant to the provisions described in note 18, supra.

the circumstances surrounding the project failure, a future Commission decided, pursuant to Sections 5, 7 and 16 of the Natural Gas Act, to reverse a previous decision in principle to require consumers to pay all debt costs regardless of the circumstances once final certification had been granted and debt servicing obligations had commenced. Thus, the partners of Alaskan Northwest (including sponsor-shippers) would be required to absorb all Alaskan Northwest debt costs as well as other (such as equity) Alaskan Northwest costs. Such a Commission decision would have an immediate severe financial impact on Alaskan Northwest, with the degree of severity being a function of the financial health of its partners.

(d) The Commission could decide several years in the future, pursuant to Section 5 of the Natural Gas Act, to direct the shippers of the gas to remove from their respective tariffs the rate adjustment (tracking) provisions which permit the shippers to flow through increases in transportation costs without the necessity of making a full filing under Section 4 of the Natural Gas Act (reflecting all current costs and revenues, not merely the increased costs of transportation). 20/ In these

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20/ While the Commission has decided in principle to allow the shippers to track in a timely manner amounts reflecting transportation costs paid to the ANGTS sponsors under tariffs approved by the Commission, the Commission has not yet decided what kind of tracking of these costs by the shippers would be permitted. For example, the tracking provision could require a periodic rate filing under Section 4 reflecting only the change in transportation cost, similar to the shipper's current purchased gas cost adjustment clauses. Or the provision could permit the shippers to adjust their rates automatically on a simultaneous basis to reflect changes in ANGTS transportation costs. Such a provision would be similar to fuel cost adjustment clauses permitted in rate schedules and tariffs of electric utilities for transactions which are subject to this Commission's jurisdiction.

It should also be noted that no decision has yet been made by the Commission governing pass-through by the shippers of transportation costs incurred under tariffs subject to the jurisdiction of Canadian authorities.

circumstances, the shippers could be subject to under recovery of the Alaskan Northwest transportation costs because of the same regulatory lag discussed above.

(e) If additional reserves of natural gas were found in Alaska sufficient to lengthen the economic life of the ANGTS beyond the 25-year life now inherent in the proposed depreciation rate, the Commission might at some future time reduce the depreciation rate so as to more accurately spread the recovery of the plant investment over the useful life of the project. 21/ Alaskan Northwest might oppose such a change on the ground that the resultant reduced amount of depreciation expense recovered on an annual basis would impair their ability to service debt having a shorter term.

(f) In the event of a premature end to the viability of the project after it had commenced operation (because of physical, market or other forces), the Commission might find that a faster write-off of debt was appropriate, rather than continued operation of the minimum bill provisions. This could cause financial harm to Alaskan Northwest if the debtholder refused to allow Alaskan Northwest to accelerate repayment of its debt, particularly if the interest rate to be paid to the lenders on the debt is higher than the general level of interest rates being paid for comparable investments. Alternatively, absent a waiver, a future Commission could determine, based on either a change in policy perception or based on facts attributing fault to the sponsors for the project failure, that the sponsor-investors (as opposed to the consumers) should bear some part, or all, of the risk of loss of recovery of debt, and then appropriately ~~adjust~~ the tariff or minimum bill provisions.

(g) In the event that Alaskan Northwest transportation costs and the costs of Prudhoe Bay and other natural gas, increase significantly, a shipper's resale rate could be increased so as to adversely affect the marketability of a shipper's gas. Under this scenario, the shippers (particularly the non-sponsor shippers) might argue for a reduction in the Alaskan Northwest transportation charges so that the shippers could continue to market their gas. Absent a waiver the Commission would have the power to

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21/ See, Memphis, Light, Gas and Water Division v. FPC, 504 F.2d 225 (D.C. Cir. 1974).

order some sort of temporary or indefinite reduction to Alaskan Northwest's charges. In response, Alaskan Northwest, or some other party, might argue that the reduction in Alaskan Northwest's charges (regardless of the reason therefor) impaired the recovery of Alaskan Northwest's "minimum bill" costs and thus jeopardized the financial health of the project.

(h) Another hypothetical involves the pipeline-shippers' current purchased gas cost adjustment (PGA) clauses, which, as now written, would permit the shippers to pass through Alaskan purchased gas costs to their customers. If the Commission should decide to revoke or modify the PGA clauses, the shippers would be subject to regulatory lag in recovering Alaskan and possibly other purchased gas cost increases. To the extent that such a lag caused a financial strain on the shippers, it could affect the cash flow to the ANGTS.

(i) In Order No. 31, the Commission stated its intention to periodically review Alaskan Northwest's rate of return on common equity. Absent the waiver, the Commission's authority to conduct such periodic reviews would provide a basis to adjust the return on common equity downward to reflect any lowering of the cost of common equity to Alaskan Northwest. Such a lowering of common equity costs would most likely result from a general overall improvement in the economy resulting in an improvement in the financial markets, leading to a reduction in the return on equity needed by Alaskan Northwest to continue to render adequate service in the public interest. The argument that a reduction in equity return could impair collection of all debt costs in violation of the proposed waiver language would presumably be an argument by lenders and others that the interest coverage must be greater than one (i.e., 1.5, 2.0, etc.) in order to ensure that Alaskan Northwest's ability to pay debt is not impaired.

11. Hypothetical Injuries to Consumers

You have asked "what hypothetical situations there might be which would work to the injury of resale customers and consumers should the waiver be granted." At bottom the most injurious risk that could be borne by the consumer is that the project might be abandoned either before or after completion, and that the consumer, through the resale customer, would be surcharged for the investment in the project but would not receive gas from it. Next most injurious is the risk that the consumer will have to pay for gas not received during sustained periods in which the pipeline is out of service. Arguably, for each risk which would exist to the sponsors and/or shippers in the absence of a waiver, there would exist a concommitant risk to the resale customers and/or consumers in the event a waiver is granted. However, in fairness these risks should be properly placed in the context of the facts of the proceeding and the legal status of the ANGTS project to date.

President Carter in his formal Decision, the Congress in its approval of the President's Decision and international agreements, and the Commission in its Recommendation to the President and in existing orders, have each concluded that this project is in the public interest. These approvals have led to the existing tariff, minimum bill and other provisions applicable to the ANGTS as described above. The project sponsors and lenders have nonetheless responded by seeking further assurance that the unique features of these determinations, as well as the Commission's final orders and rules, will not be altered or modified after adoption. Relevant here are the existing decisions of various authorities that the ANGTS may be project financed and that certain portions of the investment should be recoverable from consumers in events, including project interruption, where consumers do not receive the benefit of delivered gas. Thus, decisions have been made that impose risk on the consumers regardless of the waiver. Further, the Commission's ultimate orders and rules will allocate the remaining risks among the parties after consideration of all factors consistent with or affecting the public interest. Accordingly, an argument can be made that once the legal foundation for the ANGTS places the risks, the waiver would impose no substantial additional risk on the consumers, but only provide a method for assuring implementation of the federal decisions made. The extent to which a waiver would place additional onus on the consumers would include the implications of removing the "regulatory risk" from the sponsors. In other words, the consumers would then face the risk that a future Commission could not, based on changed circumstances or different policy perception, modify the ultimate ANGTS orders or rules within the parameters of their final issuance.

12. Reasonable Likelihood of These Events Occurring

From a legal standpoint, the likelihood that a future Commission would take or decline to take action of the type inquired about in your letter would appear to depend upon (a) whether a reconsideration of past policy determination occurs, and/or (b) the future existence of facts which would produce a policy response by the Commission. The likelihood of such facts occurring is a prediction or assessment that, presumably, has been made in connection with all federal determinations to date. In issuing the final orders and rules, the Commission is legally charged with the responsibility of weighing the risks, to both the sponsors and consumers, attendant to investing the sums necessary to complete the project. The risks are exceptionally difficult to quantify because of the infinite set of variables that exist, and in the end the question is one of judgment. Either the risks are too great for the consumers to be asked to bear (i.e., the project is not in the public interest), or they are not. The Commission may well be required to make that determination as part of its final certification of the project. 22/ Appropriately, the Congress must decide, through adoption or rejection of the waiver, whether to eliminate the "regulatory risk" inherent in continued Commission jurisdiction after final certification.

I am advised by the Chairman that he will support passage of a waiver designed to assure project financing of the ANGTS consistent with the positions expressed in this memorandum. 23/

22/ See President's Decision, Finance Condition No. 2, at pages 36-37.

23/ In this connection, the text of the ultimate waiver language, if any, is a matter of continuing interest to the Chairman, myself and the Office of the General Counsel. Without addressing any of the complexities involved with the final language, please be advised that we would welcome the opportunity to provide your Committee and other interested persons with any technical assistance or advice that may be requested.

Hopefully the foregoing provides you with an adequate response to your inquiry given the length of time taken and the resources available to prepare this memorandum. Please understand that this response is not intended, nor should it be taken, as an official Commission position. Rather, this memorandum represents the combined efforts of the Office of the General Counsel and other Commission staff members, as well as opinions of the Chairman and myself.

APPENDIX K

TO THE CONGRESS OF THE UNITED STATES:

The Alaska Highway Pipeline route for the Alaska Natural Gas Transportation System was chosen by President Carter and approved by Congress in 1977. There was a strong Congressional endorsement that the pipeline should be built if it could be privately financed. That has been my consistent position since becoming President, as communicated on numerous occasions to our good neighbors in Canada and I am now submitting my formal findings and proposed waiver of law.

As I stated in my message to Prime Minister Trudeau informing him of my decision to submit this waiver:

> My Administration supports the completion of this project through private financing, and it is our hope that this action will clear the way to moving ahead with it. I believe that this project is important not only in terms of its contribution to the energy security of North America. It is also a symbol of U.S.-Canadian ability to work together cooperatively in the energy area for the benefit of both countries and peoples. This same spirit can be very important in resolving the other problems we face in the energy area.

This waiver of law, submitted to the Congress under Section 8(g) of the Alaska Natural Gas Transportation Act, is designed to clear away governmental obstacles to proceeding with private financing of this important project. It is critical to the energy security of this country that the Federal Government not obstruct development of energy resources on the North Slope of Alaska. For this reason, it is important that the Congress begin expeditiously to consider and adopt a waiver of those laws that impede private financing of the project.

Ronald Reagan

THE WHITE HOUSE,
October 15, 1981.

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FINDINGS AND PROPOSED WAIVER OF LAW

Pursuant to the provisions of the Alaska Natural Gas Transportation Act of 1976 (ANGTA) 15 U.S.C. § 719, *et seq.*, a transportation system to transport Alaska natural gas to consumers in the continental United States was selected and approved by Congress in 1977.

I find that certain provisions of law applicable to the federal actions to be taken under Subsections (a) and (c) of Section 9 of ANGTA require waiver in order to permit expeditious construction and initial operation of the approved transportation system. Accordingly, under the provisions of Section 8(g)(1) of ANGTA, I hereby propose to both Houses of Congress a waiver of the following provisions of law, such waiver to become effective upon approval of a joint resolution under the procedures set forth in Section 8(g)(2), 8(g)(3), and 8(g)(4) of ANGTA.

Waive P.L. 95-158 [Joint Resolution of approval,* pursuant to Section 8(a) of ANGTA, incorporating the President's *Decision*] in the following particulars:

> Section 1, Paragraph 3, and Section 5, Conditions IV-4 and V-1, of the President's *Decision*, in order to permit producers of Alaska natural gas to participate in the ownership of the Alaska pipeline segment and the gas conditioning plant segment of the approved transportation system; *provided*, however, that any agreement on producer participation may be approved by the Federal Energy Regulatory Commission only after consideration of advice from the Attorney General and upon a finding by the Federal Energy Regulatory Commission that the agreement will not (a) create or maintain a situation inconsistent with the antitrust laws, or (b) in and of itself create restrictions on access to the Alaska segment of the approved transportation system for nonowner shippers or restrictions on capacity expansion; and
>
> Section 2, Paragraph 3, First Sentence, of the President's *Decision*, to include the gas conditioning plant in the approved transportation system and in the final certificate to be issued for the system; and the

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[†] See: Executive Office of the President, Energy Policy and Planning, *Decision and Report to Congress on the Alaska Natural Gas Transportation System* (September 1977) (hereinafter referred to as President's *Decision*); and see H. J. Res. 621, Pub. L. No. 95-158 (1977), wherein the President's *Decision* was incorporated and ratified by Congress pursuant to Section 8(a) of ANGTA.

[*] 15 U.S.C. § 719f nt.

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application of Section 5, Condition IV-2 of the President's Decision to the gas conditioning plant; and

Section 5, Condition IV-3, of the President's Decision; provided, however, that such waiver shall not authorize the Federal Energy Regulatory Commission to approve tariffs except as provided herein. The Federal Energy Regulatory Commission may approve a tariff that will permit billing to commence and collection of rates and charges to begin and that will authorize recovery of all costs paid by purchasers of Alaska natural gas for transportation through the system pursuant to such tariffs prior to the flow of Alaska natural gas through the approved transportation system --

- (a) to permit recovery of the full cost of service for the pipeline in Canada to commence --
  - (1) upon completion and testing, so that it is proved capable of operation; and
  - (2) not before a date certain, as determined (in consultation with the Federal Inspector) by the Federal Energy Regulatory Commission in issuing a final certificate for the approved transportation system, to be the most likely date for the approved transportation system to begin operation; and
- (b) to permit recovery of the actual operation and maintenance expenses, actual current taxes and amounts necessary to service debt, including interest and scheduled retirement of debt, to commence --
  - (1) for the Alaska pipeline segment --
    - (A) upon completion and testing of the Alaska pipeline segment so that it is proved capable of operation; and
    - (B) not before a date certain, as determined (in consultation with the Federal Inspector) by the Federal Energy Regulatory Commission in issuing a final certificate for the approved transportation system, to be the most likely date for the approved transportation system to begin operation; and
  - (2) for the gas conditioning plant segment --
    - (A) upon completion and testing of the gas conditioning plant segment so that it is proved capable of operation; and
    - (B) not before a date certain, as determined (in consultation with the Federal Inspector) by the Federal Energy Regulatory Commission in issuing a final certificate for the approved transportation system, to be the most likely date for the approved transportation system to begin operation.

Waive Pub. L. No. 688, 75th Cong., 2nd Sess. [Natural Gas Act] in the following particulars:

Section 7(c)(1)(B) of the Natural Gas Act to the extent that section can be construed to require the use of formal evidentiary hearings in proceedings related to applications for certificates of public convenience and necessity authorizing the construction or operation of any segment of the approved transportation system; provided, however, that such waiver shall not preclude the use of formal evidentiary hearing(s) whenever the Federal Energy Regulatory Commission determines, in its discretion, that such a hearing is necessary; and

Sections 4, 5, 7, and 16 of the Natural Gas Act to the extent that such sections would allow the Federal Energy Regulatory Commission to change the provisions of any final rule or order approving (a) any tariff in any manner that would impair the recovery of the actual operation and maintenance expenses, actual current taxes, and amounts necessary to service debt, including interest and scheduled retirement of debt, for the approved transportation system; or (b) the recovery by purchasers of Alaska natural gas of all costs related to transportation of such gas pursuant to an approved tariff; and

Sections 1(b) and 2(6) of the Natural Gas Act to the extent necessary to permit the Alaskan Northwest Natural Gas Transportation Company or its successor and any shipper of Alaska natural gas through the Alaska pipeline segment of the approved transportation system to be deemed to be a "natural gas company" within the meaning of the Act at such time as it accepts a final certificate of public convenience and necessity authorizing it to construct or operate the Alaska pipeline segment and the gas conditioning plant segment of the approved transportation system or to ship or sell gas that is to be transported through the approved transportation system; and

Section 3 of the Natural Gas Act as it would apply to Alaska natural gas transported through the Alaska pipeline segment of the approved transportation system to the extent that any authorization would otherwise be required for ---

(1) the exportation of Alaska natural gas to Canada (to the extent that such natural gas is replaced by Canada downstream from the export); and
(2) the importation of natural gas from Canada (to the extent that such natural gas replaced Alaska natural gas exported to Canada); and
(3) the exportation from Alaska into Canada and the importation from Canada into the lower 48 states of the United States of Alaska natural gas.

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* 15 U.S.C. § 717

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Waive P.L. 94-163* [Energy Policy and Conservation Act] in the following particulars:

Section 103 as it would apply to Alaska natural gas transported through the Alaska pipeline segment of the approved transportation system to the extent that any authorization would otherwise be required for --

(1) the exportation of Alaska natural gas to Canada (to the extent that such natural gas is replaced by Canada downstream from the export); and
(2) the importation of natural gas from Canada (to the extent that such natural gas replaced Alaska natural gas exported to Canada); and
(3) the exportation from Alaska into Canada and the importation from Canada into the lower 48 states of the United States of Alaska natural gas.

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* 42 U.S.C. § 6201, _et seq_.

Mr. UDALL. Thank you very much for your complete and thorough statement which is an important part of our record.

Just a couple of quick questions from me.

You talked earlier about the portions of this system which have already been built. The Secretary made the point that they were built under cost and below budget and I return to this whole thing of escalation of cost.

What is the difference between the sections of the pipeline system that have already been built which came in without this huge escalation that we have had in other cases, and the remaining parts of the pipeline that your association proposes to build?

Why does one escalate and the other gets under budget?

Mr. MCMILLIAN. Well, the pipeline portions that are now being constructed or have been completed are basically built in areas where we've been building pipelines all our lives or all the history of our industry, and under normal weather conditions.

We're ahead of schedule, under budget in all these projects. The Canadians are also. They are about 10 percent under budget on their pipeline construction.

We feel like with the Alaskan portion that this will be the most difficult part of the pipeline project because we have the most adverse weather and geotechnical conditions to overcome there.

With the $550 million of preplanning, preengineering work that we've spent, we've examined all these things in great detail.

In addition to that, we've had the alyeska experience to build upon and a lot of that was bad, but a lot was also good.

They completed a workable system that has high integrity and that's working now. So we have their immense amount of data and records that they acquired during that project and we have used that in our estimates of engineering design, construction plans and cost estimates.

Mr. UDALL. I hope you can really dig into this and keep on top of it and find ways. That's one of your big problems, I'm sure you understand.

Mr. MCMILLIAN. One of the big problems with financing and everywhere. We think that the pipeline in Alaska will be on schedule, on budget.

Mr. UDALL. With 15- or 20-percent money, I can understand, that would be a real factor in escalation as well as some of the other costs.

If all goes well, if we give you the waivers you want and all goes well, what's the best case for completion of the system?

When can we have Alaskan gas?

Mr. MCMILLIAN. In 1986–1987. If things fall in place here, we could have gas flowing through the system in the heating season of 1986–1987, probably November 1986.

Mr. UDALL. What is your best estimate on how long a life this project would have? How much gas is up there? What do you predict? Is this something we are going to need for 20 or 30 years or is it fairly short yield?

Mr. MCMILLIAN. No, sir. You take the Alaskan volume at 2 billion cubic feet a day, I think that gives you 35 years of gas supply.

What we're anticipating is that like most pipelines that once you have a pipeline established or gas energy corridor established, there are other gas reserves developed to serve that area, like the history of the Lower 48.

We know there is additional gas reserves in Alaska. We feel like the 145 trillion of potential cubic feet of gas that is there, a large percentage of that will be used in this system.

None of us will ever see the life of this pipeline end. I think it will be a continued life over many years.

Mr. UDALL. I heard somebody advocating the other day that the Alaskan oil pipelines, based on the reserves at Prudhoe Bay, will have exhausted its resource in 15 years or some fairly short period of time or at least you won't have enough oil up there to keep it full and that we'd be much better off to use that to transmit gas and build the necessary liquefaction facilities or whatever and pick up the slack there rather than build this.

Would you care to put that one down or comment on it?

Mr. MCMILLIAN. Well, the oil companies can probably give you a better answer than I can on this, but I anticipate and I'm sure they anticipate with the exploration activities and the oil reserves that are potentially still there, that they plan to continue to use that for many years beyond the oil reserves at Prudhoe Bay.

Mr. SEIBERLING. Some of us have had no opportunity to ask questions of anybody. Are we just going to start out as though—

Mr. UDALL. No, it is a real injustice to bring a cabinet member to sit through the hearing and you never get to ask any questions.

You have a lot of interest here and I think the gentleman understands your problem. It's been my intention with Mr. McMillian here on the stand to make that up to those of you who did not get a chance to question the Secretary and I'll take you first.

Mr. SEIBERLING. That's what I was going to suggest.

Mr. UDALL. That was my intention. I think the Chairmen of one of the two joint subcommittees ought to be recognized for a few minutes and I give Mr. Sharp that privilege.

Mr. SHARP. Thank you.

Mr. McMillian, if the Congress votes no on the waiver package, is that it for this pipeline proposal or is there any other way you think there is any chance of salvaging this?

Mr. MCMILLIAN. Mr. Sharp, if we're given a no vote on this, it is hard to say exactly what would happen. I think the project will be built some day. It has to be built. It is in the national interest to build it.

We might not build it and we might not build it in our time frame. I think it would be unfair to expect us to continue to spend sometimes as much as $30 million a month to develop and to meet a time schedule where we know now that we would not be able to privately finance it.

So I'd expect us to say that we'll work on the project and we'll wait for maybe a more favorable economic time frame.

Maybe we'll watch the Russians and Germans build their line and maybe we'll learn something from them about how to do it.

I'd hate to do it that way, but I don't think you can expect us to go on spending money to develop this project if there is no chance of private financing when everyone says it has to be privately financed.

So I think we'd just have to put it on idle until conditions did change.

Mr. SHARP. But your presumption is without this waiver package, you would not be able to privately finance it.

Mr. MCMILLIAN. Without this waiver package, I don't think we have a chance.

Mr. SHARP. What if Congress were to take your waivers one by one and decided to only reject one of the waivers, namely, the prebilling waiver? How essential do you see that particular waiver to the package?

Mr. MCMILLIAN. Well, if you reject that, there would be no project because the Canadian partners and the Canadian companies must have that.

They are in a different financial structure and a different tax basis than we are. They have no investment tax credit and they cannot write off interest, so without them having this ability to recover their investment, the Canadian portion would not be built.

Mr. SHARP. One of my colleagues from Oklahoma, who could not be here, Mr. Synar, I assume, would ask this question if he were here, to what degree have you and the sponsors been in touch with the State of Alaska as a financing source?

And do you have any expectation of Alaskan Government cooperation?

Mr. MCMILLIAN. Yes, sir. I covered that in my written testimony to some degree. To briefly summarize it, we worked for about 2 years with the State of Alaska, hoping to get a very minimal type of effort from them on tax-exempt bonds and that was not workable.

Under the present thinking and structure in Alaska, Governor Hammond will be here to address this committee. I hope you ask him that question.

I'd like to be here when he answers it because it is a good question. We would welcome their support because we think that under the Presidential decision, that was made and ratified by you in Congress, the beneficiaries in this gas sale—and they are the greatest beneficiary—should help in some way, and we would welcome that help.

But we're not factoring any of that into our financial plans because I think it is too uncertain under present circumstances, and the Governor can probably explain those present circumstances better than I can, but we'd welcome that support and it would be nice to have.

Mr. SHARP. One of the changes in the waiver package from the original request that you made from the White House and the one the White House made to us was the indication of a specific date before prebilling could possibly occur to be set by the Federal Energy Regulatory Commission.

Now, obviously, one of the reasons for that change in the waiver package was designed to try to give some assurance to consumers that they would not have to pay on a progressive kind of schedule at the beginning of any little segment thereafter.

One lingering concern that has been raised with us about that process is, what if the date is set too early? Wouldn't you and other sponsors of parts of the pipeline have an interest in trying to set an earlier date in order to assuage one of the sections, or the Canadian section?

Mr. McMillian. No, sir. It is just the opposite for us. Because of this recovery mechanism, billing commencement mechanism that's been explained and explained accurately but not in great enough detail in that we, the Alaskan portion, if we don't complete the Alaskan portion, we don't receive a dime.

We cannot bill anybody for a penny of that support of the system and likewise, if it did happen where we did put that clause into effect, we would not recover any equity or return on equity after the billing commencement date.

So it is no financial benefit to us for that to happen and it would be a financial disadvantage to the companies that are selling the gas because it does impact their market.

So it is just the opposite. It is not to our advantage for this to happen. We don't make any money from it.

Mr. Sharp. Mr. Chairman, if I could, one member has asked if we could submit written questions that Mr. McMillian might be able in the next week respond to in the record and I hope that he would be willing.

Mr. McMillian. Yes, sir, I'd be glad to do that, Mr. Sharp.

Mr. Udall. Mr. Marriott.

Mr. Marriott. Mr. McMillian, welcome to the committee. As a constituent, I applaud you for the great contribution that you make to Utah and to the West, and hopefully for the national security.

Let me just ask two quick questions, if I may, first of all.

I asked the Secretary about the billing waiver and the cost of that waiver to the average recipient of power and gas. He said the maximum cost might be $12 a year per family or per user and I assume that was on the high side.

In your testimony, you indicated that the cost of gas is going to go down and you gave a figure of $4.85 per million Btu's over a 20-year period.

Now, can you put in perspective for us to put to ease some of the concerns of our consumer advocate friends that the cost of gas will actually be less to the consumer and of the $12 cost the Secretary mentioned might well be swallowed up in savings in the future?

Mr. McMillian. Yes, sir, that is exactly what happens. If we had to put into effect the early billing commencement date, rather than take those sums and capitalize them and put them into our rate base where we would earn on those sums continuously throughout the life of the project, I believe the figure is, and Darrell will have to correct me on this, for only 6 months delay where we would prebill on completion rather than amortize and earn on this, it amounts to about $2.6 billion savings for a 6-month time increment to the consumer.

Is that right, Darrell?

Mr. MacKay. Yes, it is 2.6 if you looked at all of the segments that were involved. Of course, any single segment would be different.

Mr. McMillian. I know it is a disadvantage to build something you don't have, but if you are using gas over a long period of life or time, the ultimate cost to the consumer is less by this method than any other method.

Mr. MARRIOTT. If we did not build the pipeline and we anticipated what the cost of gas might be without the pipeline, what might that be to the consumer 5 or 10 years from now in the absence of the pipeline?

Mr. MCMILLIAN. It would be the cost of 600,000 barrels a day of oil to equate to this and if you take the 20-year average of $4.85 and take the 20-year average of $9 oil, so you are looking at roughly doubling the cost to consumers if the pipeline was not here to deliver this amount of energy.

Mr. MARRIOTT. So the price could well be double the $4.85 figure without the pipeline?

Mr. MCMILLIAN. Yes, sir.

Mr. MARRIOTT. One last question. I assume that prior to coming to Congress looking for these waivers that you did everything in your power to find various sources of financing that would go along without the waiver program.

Would you just give us any information as to what your history has been on trying to get the financing?

Mr. MCMILLIAN. The positive aspects of the financing of the project is the real solid financing that we developed for prebuilding which was $2 billion roughly and is the largest gas pipeline project which has ever been constructed in the lower 48. We privately financed it.

Regarding the Alaska facilities we presented a plan to the bankers. It was our plan with help and cooperation from the producers where they took 30 percent of the equity and we took 70 percent of it. We had an overrun pool concept as described in the report and we presented that hoping that the bankers and the financial markets would accept this method of financing. What they told us is what we reported that due to the change in conditions and having to go to the world markets today, there is just not enough money that would be attracted to that type of credit.

So, therefore, we had to modify our financing plan. I did not want to put another billion dollars in this project either. I was going to put $500 million but now I'm dedicating $1,500,000,000 of our company's assets and credit to this project to make it go and to make it work.

So we had to do that.

I want to say something else. The transmission companies themselves have now committed over $8 billion to the project. The oil companies have initially committed $9 billion to the project in their assets and that's an awesome commitment in total dollars.

I think they are to be congratulated and our transmission companies are to be congratulated on this, but still when we are being asked to support this debt, it does bring additional requirements on all of us.

Mr. MARRIOTT. Thank you very much.

Mr. UDALL. We have another vote on.

The gentleman from Oregon?

Mr. WEAVER. First, I would like to make inquiry. Is the Secretary of Energy coming back?

Mr. UDALL. He will come back, although we did not fix a date.

Mr. **Weaver**. He was informed almost 2 weeks ago of this committee and I think it is an insult to this committee that he only stayed an hour. It is incredible.

Mr. **Udall**. I dealt with him on this and found him very fair. A Cabinet meeting was called by the President and he had to go today. We will have him back in the future and he will stay at some length.

Mr. **Weaver**. It is not a Cabinet meeting, Mr. Chairman. I'm informed it is a meeting with Mr. Meese.

Mr. **Udall**. It may be more important.

Mr. **Weaver**. Mr. Chairman, I want to press the issue in these meetings on the alternative approach which should be the first approach, the primary approach that Dr. Sullivan Marsden of Standard University Petroleum and his colleagues have proposed, which would be to build a methanol plant in Prudhoe Bay and ship the liquid methanol through the existing Alaska pipeline.

This has the merit of saving around $30 million, getting more oil out of the oilfields and therefore, is, by all odds, the superior approach.

I'm not sure, and Dr. Marsden will testify in these hearings. I'm not sure, Mr. McMillian, if you are the one to ask about this because, obviously, you don't have that option.

Your option is to build the pipeline or nothing.

Mr. **McMillian**. Mr. Weaver, that's not true. We have an option to build any system that will transport this gas in the most economical way possible. This was examined very carefully by long years of prolonged testimony and I believe you really ought to address this question to ARCO.

I know they made a complete study of this and other oil companies have, too, and we have. We welcome you to keep studying it.

It is not a viable solution. You lose half the energy to begin with.

Mr. **Weaver**. That's all well and good. Dr. Marsden's article will appear several weeks from now in the Oil and Gas Journal and he's one of the most respected people in this country in this area and he says it will work and work very well.

Anyway, I want to explore with you, sir, the $4.85 that you say that the gas will cost at its delivery point.

Would you break that down, how much you are spending for the pipeline?

Mr. **McMillian**. Yes, sir, we have that broken down.

You want the transportation costs and the gas costs?

Mr. **Weaver**. Yes, sir.

Mr. **MacKay**. The gas cost portion of that is $2.13, including fuel, so the remaining——

Mr. **Weaver**. It is $2.72.

Well, if the pipeline cost $30 billion. I'm just using simple figures and I'm sure your computers and analysts can do much better, but you are going to ship around 2 billion cubic feet a day over the pipeline, is that not correct?

Mr. **MacKay**. Yes, sir, initially.

Mr. **Weaver**. Is it going to be substantially more?

Mr. **McMillian**. We hope so, yes, sir.

Mr. **Weaver**. Anyway, 30 million at 15 percent interest, you are going to be paying $5 billion interest and $5 billion interest and 2 billion cubic feet a day is $10 million a day, your price, and that comes up to $3½ billion a year return and $5 billion is the interest on the pipeline alone.

Something has to be wrong. Where does the Wall Street Journal get the $15?

Mr. McMillian. I don't know where they get anything. That reporter is the worst reporter in the world and anybody that even quotes him does not have good taste.

Mr. Weaver. Where are you getting the information if it is $5 billion?

Mr. McMillian. Mr. Weaver, we have detailed studies of it, and we have studied it for ourselves. We have computer studies. We can give you very complete analysis you want.

Mr. Weaver. Is 15-percent interest of $30 billion $5 billion a year?

Mr. McMillian. I will accept any figure you want to say there.

Mr. Weaver. Is 15 percent of $30 billion $5 billion?

Mr. McMillian. Whatever you want to say. What I am saying is that the numbers I have given you have been carefully studied and thought out.

Mr. Weaver. I don't want to hear any generalities, sir.

Mr. McMillian. I am not going to debate with you on back-of-envelope figures. We have got computers and scientists that have done this study in detail.

Mr. Weaver. Fifteen percent of $30 billion is roughly $5 billion. At 2 billion cubic feet a day at your price that is $10 million a day; is that not correct? And $10 million a day is $3.5 billion a year? Now would you explain that, please, sir?

Mr. MacKay. I think the point of confusion, perhaps, sir——

Mr. Udall. Before you get to that I am going to go vote. Do you wish to stay, Mr. Weaver?

Mr. Weaver. Yes, I do.

Mr. Udall. You are in charge.

Mr. MacKay. The figures that Mr. McMillian presented are in 1980 dollars. The reason for doing it that way——

Mr. Weaver. Don't get into that. Fifteen percent interest of $30 billion is $4.5 billion.

Mr. MacKay. You are comparing things that are not comparable. That is what I was trying to straighten out. You have got to deal in today's costs. We are talking about a $20 billion investment in today's cost, not the figure that you mentioned of $30 billion or more. As a consequence, you have to think about the transportation costs over the 20 years, which declines very dramatically in comparison with oil costs, again in constant dollars, and that is the two to compare.

Mr. Weaver. But $20 billion at 15-percent interest would be $3 billion a year, right? That is just the interest, not the principal.

Mr. MacKay. Fine.

Mr. Weaver. And at 2 billion cubic feet a day at $2.72 a thousand cubic feet, you are going to come out with about $3.5 billion for that gas. So you are talking about the interest on the debt alone being roughly similar to what you are going to sell the gas for.

Mr. MacKay. But see, the interest is going down. That debt is being paid off over that 20-year period. The interest over the life of that project won't even be half of that.

Mr. Weaver. I am not interested in your repayments. I am talking about interest.

Mr. MacKay. The interest also declines.

Mr. Weaver. Where is the money paid on the principal, then?

Mr. MacKay. It is in the $2.70. That covers the full cost of service, including all operating costs, depreciation, principal and interest repayment, and return on equity, so it is a complete, total cost of transportation service.

Mr. Weaver. What interest do you anticipate paying for this money?

Mr. MacKay. The figures that we have used vary from 10 to 14 percent.

Mr. Weaver. That is a big variation on $20 billion.

Mr. MacKay. We are trying to anticipate all of the things that may occur. As Mr. McMillian pointed out, one of the greatest uncertainties we have and the thing that makes the cost the most variable to predict is inflation and interest. So we are trying to anticipate the full range of what might impact the cost to be sure we have reflected everything appropriately in comparing it with oil or other alternatives.

Mr. Weaver. Now do you have a contract? Are the oil companies agreed to get $2.13 for their gas?

Mr. MacKay. The Natural Gas Policy Act of 1978 has established the price for gas at Prudhoe Bay at $1.45 in 1977, escalating with inflation. So that is a matter of regulation at this point.

Mr. Weaver. This is completely deregulated in 1985?

Mr. MacKay. No, Prudhoe Bay gas will remain regulated forever under the Natural Gas Policy Act.

Mr. Weaver. Unless new law is enacted.

Mr. MacKay. That is right.

Mr. Weaver. And it goes up just with the inflation. Well, I still am very dubious about your $2.73 to finance this pipeline. The total cost you now estimate to be $20 billion?

Mr. MacKay. No. In 1980 dollars it is $23 billion less approximately a little less than $2 billion that would have been spent for the prebuild project for Canadian gas, so it is just a little over $20 billion in 1980 dollars.

Mr. Weaver. How much gas comes out naturally from the Prudhoe Bay field today? I mean just comes up with the oil, that has to be reinjected?

Mr. MacKay. The oil companies would be the best to ask, but I believe that figure is somewhere around 2 billion cubic feet a day is either used for fuel or being reinjected.

Mr. Weaver. Two billion cubic feet a day?

Mr. MacKay. Yes, sir.

Mr. Weaver. The gentleman from Washington.

Mr. Swift. Thank you. And I apologize in advance if I ask something that has already been asked with this on again-off again thing with the votes, with some of us here and some of us not.

Just a couple of questions. If the sets of circumstances contained in the waivers occur so that there would be charges made before the gas flows to the consumer, what is the mechanism by which those charges were apportioned? Is the proportional amount that one would presume to go to the various companies just as simple as that?

Mr. McMillian. Yes, sir, the gas that the gas company has contracted for, those costs would be put to that system.

Mr. Swift. If the entire pipeline should not be completed but one or more of the segments is completed, how long would the customers continue to pay those charges and what would be their expected liability?

Mr. McMillian. If that circumstance did exist, which we don't think will, then it would be over the amortization period of the debt and interest, which would be 20 years.

Mr. Swift. In effect, they would be picking up the total cost of the completed segments?

Mr. McMillian. Yes, sir, minus equity for the Alaskan portion. We would receive no equity. We would lose our equity if that happened. So it wouldn't be for the complete cost of the system. It would just be for the debt and interest portion.

Mr. Swift. Did the other gentleman care to comment?

Mr. MacKay. I was just going to add that we believe that it is very unlikely that noncompletion would occur, which is what Mr. McMillian was addressing. The more likely thing, if anything would occur, would be some delay. Even that, we anticipate, is very remote. But we cannot envision any delay going beyond one year, which would be the possibility that might exist between the plant and the pipeline coordination.

Mr. Swift. Two questions arise it seems to me, then. First of all, what we have established is that however remote it may be there is an element of risk, and the consumer is assuming in this regard but he is not sharing in any of the return if it is successful. That is kind of an age-old debate I guess, but could you comment on that?

Mr. McMillian. Yes, sir. I think, as I mentioned, the net economic benefit of this project to this Nation is immense. It is between $40 and $90 billion.

Mr. Swift. But you can't pay your stockholders with net benefit to this Nation.

Mr. McMillian. Yes, but I am saying the net economical benefit from this project goes to the consumer. The major idea is it goes to the consumer.

Mr. Swift. You couldn't sell any stock on that basis.

Mr. McMillian. No, no. We lose. We do not recover money. This doesn't benefit us, but as you will see when we present our net economic benefit studies that most of this does go to the consumer, so the consumer does benefit by this project in an immense way.

Mr. Swift. Where did you say the detail of that rationale exists? You are going to be providing that information?

Mr. McMillian. Yes, sir. It is in my statement. It is attached to my statement.

Mr. Swift. I will look into it and, hopefully, see you again, because when anyone tells me 2 and 2 makes 5, I like to check. Sometimes it does.

The other question was raised with regard to your certainty that this would be built, and I am not in any way questioning your professional judgment in that regard, and that may be what the orders are. But one of the things that troubles us is that we also were assured that it wouldn't need any waivers. Now, if, in fact, we go ahead and provide the waivers; if, in fact, there is some prebilling made, you are really getting everybody involved, the whole Nation, into this so deep that then, if things don't fly, we are going to be back here with a Federal bail-out. Nobody intended it that way. Nobody intended it that you be here. They aren't the good guys and the bad guys here. It is just that one step leads to another and we find ourselves a little bit deeper in the quagmire, and we, as policymakers, I guess, have to make a judgment whether this is really worth taking the next step or whether this is the time to bag it.

Aside from your great faith that this is going to occur, could you talk just a little bit about what solid business reasons you think this is going to be built, and you won't need a Federal bail-out and the consumer is going to benefit. That reason that did not exist when everybody was certain of that a few years ago when everyone thought no waivers would be necessary.

Mr. McMILLIAN. Well, I think the faith of the 13 gas transmission companies and oil companies that have put their developmental funds in this, and their technical effort of some $550 million would lead you to believe that the project is a worthy project from their standpoint and from the national standpoint.

I think that the further commitments that have been made, from our gas transmission industry, which have committed to over $8 billion worth of funds, equity and debt support, show that they must believe that this project is a sound economical, viable project that could be completed. Because a lot of the net worth of their company would be seriously affected or destroyed if it was not so.

So I think you are seeing a large segment of the oil and gas industry coming forth, putting up everything within their means to say this is what we have to make the project work. We think it is workable. We think it is completable. We think the gas is marketable. We think it is in the national interest. And we are willing to make this type of commitment for our companies, and I think that is probably the best testimony you have, is that their money is where their mouth is and if a loss occurs, the equity is lost.

Mr. SWIFT. Well, I am very mindful of the fact that our country told our neighbors to the north, you go ahead because we will be right behind you. And it seems to me that we have some commitment in that regard. So I am really very open-minded and I want very much to agree with you. But concerns, I believe, are shared throughout the Congress and we need some fairly solid kinds of supporting evidence to convince us that this is a prudent step and that this, in fact, will be the end of it, that it is not the third step of three, the last one being coming back for a bail-out at some point.

Thank you, Mr. Chairman.

Mr. SHARP. I am not quite clear whether Mr. Benedict or Mr. Corcoran wants to speak.

Mr. Corcoran is recognized.

Mr. CORCORAN. Mr. McMillian, I have two areas of this proposal that I want to question you about. First of all, in connection with the position of the banks up till now as I understand it, the banks have said to you that unless you get the waivers from the Government, there will be no additional credit. Is that correct?

Mr. McMillian. Yes. I said that to continue with the financing of the project we have to have a waiver package of this nature.

Mr. Corcoran. And in connection with the banks that have told you that, what is their exposure at the moment on that project? How much money do they already have in this project?

Mr. McMillian. They have no money at this time. It is mainly the companies that are developing the project, like ourselves.

Mr. Corcoran. So this would be new credit from their standpoint?

Mr. McMillian. It would be new credit, yes. That credit has to be supported.

Mr. Corcoran. Secondly, with respect to the cost recovery mechanism and the precompletion billing, perhaps I don't understand it, but one of the caveats in the procedure is that the Federal Energy Regulatory Commission would have to make a determination on the date of completion and, obviously, in order for the FERC to be in a position to make that determination they would have to take testimony in one form or another from you.

And so, what that suggests is that you would have some idea as to when completion would occur. If that be the case, why would you need the prebilling requirement? Why wouldn't you be in a position to say we are going to complete the project, we know when the project will be completed and therefore, we would never have to exercise this waiver?

Mr. McMillian. The conditions you mention we already have from FERC in some degree. Let me let Mr. Rush Moody explain that, because in our existing tariff today we do have this and he can better explain it than I, and I will let him do that.

Mr. Moody. I am not sure I can do anything better than Mr. McMillian but I will try.

Mr. Corcoran, the situation as we would anticipate it if Congress sees fit to approve the waiver is that the Commission would, as you suggest, need to compile a record based on the testimony of the sponsors in the United States, the sponsors in Canada, appropriate consultation with regulatory authorities in Canada and the Federal inspector down here, to determine the most likely target date for the completion of the entire system, including the conditioning plant at Prudhoe Bay.

The suggestion that the Commission set that date certain as being the initial trigger date or for any possible billing, I think arose at the time that the White House and members of the staff in the Senate and the House were working on this problem. And I believe it was Mr. Synar who pointed out that this addition of a date certain was something that came into the package after Mr. McMillian had made his submission to the White House.

It is my understanding that the date came in because of concern that the Canadians might rush to completion and thereby earn a full cost of service billing at a date when it was in their economic interest to do so. And there would be no protection for U.S. consumers against that happening. And so the notion of a U.S. Government-set target date as being the earliest possible date for the initiation of billing came into the waiver.

The question I think that you ask is why do you need any early commencement of billing at all, and I think that the answer is probably best contained in the bank's letter to Mr. McMillian and his partners, of August 28, which is included within Mr. McMillian's statement. And, in essence, as we understand it, the banks are saying to us that during the period of construction that the sponsor companies will have to come up with credit support in the form of some assurance of debt repayment, and some acceptable or satisfactory form of billing commencement upon completion of identifiable segments will be necessary.

Mr. **Corcoran**. But the problem is that from the standpoint of a consumer, if this project is not completed, if this waiver authority is granted, if prebilling takes place, then at least with respect to servicing the debt the ratepayer is in a position forever of paying the debt service costs associated with this project. And my problem is that since the whole thing triggers on the completion of the project, if, according to this procedure, you are going to be at a point where you can say by November of 1986 or by November of 1987 it is going to be completed, then why would you have to have this particular prebilling option in the first place?

Mr. **Moody**. May I start with the premise that underlies your question, and that is that this mechanism might result in the consumer paying for something before gas flows and why do we need to do that. I think this is why John wanted me to respond in the first place. There is an existing tariff that the partnership already has, which has been approved by the FERC. This tariff was filed 2 years ago and went through the hearing process. The Commission wrote a final order, order 31.

At the present time under that tariff, the Alaskan Northwest Partnership is entitled to initiate a minimum bill which covers debt service when the pipeline is complete, irrespective of whether gas is flowing at that time. At the present time under the existing tariff, there is a provision for the consumer to be charged before gas is flowing. We are not suggesting a change in that except in these limited respects: That because the Canadians have determined that billing upon completion of their segment is essential to the construction of the Canadian segment, and the last administration and this administration acknowledge that it is a commitment on the part of this Government to give that to Canada, you have to have this waiver that is embodied in the President's request to satisfy the international commitment.

Mr. **Corcoran**. That is a primary consideration of the Canadian aspect.

Mr. **Udall**. The gentleman from Ohio is recognized.

Mr. **Seiberling**. Thank you, Mr. Chairman.

Mr. McMillian, you may recall that several years ago when you appeared before Mr. Roncalio's Subcommittee on Public Lands, which I now chair, I strongly supported your proposal.

Mr. **McMillian**. Yes, sir.

Mr. **Seiberling**. I felt at the time that it was very important that we get the Middle West tied in with the Alaskan gas distribution system, and I see in one of the exhibits which you submitted to him that Ohio would be the No. 2 user after California, which would be No. 1.

However, things have changed a bit. At the time you appeared before the Public Lands Subcommittee, what was your estimate as to the total cost of this system?

Mr. McMILLIAN. At that time I think the total cost in 1975 dollars was $13 billion.

Mr. SEIBERLING. I seem to recall a figure of $8 billion, but your recollection is probably better than mine. What has happened to make it go up so astronomically?

Mr. McMILLIAN. Well, that was 1975 dollars and for about every 5-year increment that you take with inflation and interest, you nearly double the cost, as well as several of those things I touched upon in both my written testimony and my previous statement.

The basic system is the same. It is a buried pipeline in both countries. The chilled gas concept is still there. The delays have caused additional costs. At first we were going to use the existing Alyeska camps. We were going to use the existing Alyeska workpad that has deteriorated and their infrastructure; that is no longer there; that we have to build a communication infrastructure; and those things have added costs to us, and time, that we are not able to use as we once hoped we could. But the biggest cost and the increase to the project has been inflation and interest.

Mr. SEIBERLING. Of course, interest, if you figure that in, I see something that the Office of Federal Inspector prepared that indicates that the interest costs take it up to $54 million. So the figure I was referring to was merely the actual construction cost, which certain analysts more than doubled from what the original estimates were.

Mr. McMILLIAN. That is 1975 dollars, and we are talking over a 12-year timeframe since that estimate was given. And, of course, we were given criteria to figure inflation with by FERC and other parties at that time, and none of those factors have been accurate.

Mr. SEIBERLING. Well, I didn't recall any hedging when you were before us urging we approve your route, but obviously it would have been desirable to have done so.

Well, now figures on the delivered cost of gas are all over the lot. I got something that I guess was prepared by your company that Mr. Roncalio gave me the other day showing a $2.50 per 1,000 cubic feet cost in 1980 dollars. I see in the submission that the Office of the Federal Inspector prepared an estimate of $4.59, and now I hear figures going up as high as $15. How do you account for this incredible variation? That is of great concern to me. It is one thing to have assurance of gas. It is another thing to have an assurance that the consumers are going to pay through the nose at such rates whether they want to or not.

Mr. McMILLIAN. We can give you our cost estimate and we think our cost estimates are very accurate with the amount of engineering work that we have done in the timeframe we are talking about. One thing we cannot give you very accurately is what next year's or the next 5 years' inflation rates or interest rates will be. We have been wrong on those, and I think everybody else has. Mr. MacKay has worked these cost numbers very accurately and can describe them more to you. Sometime you are talking about 1980 dollars and, of course, you were talking about 1975 dollars. You are talking about 1980 dollars or 1980 or 1987 dollars. We are talking about different timeframes and different interest rates.

Mr. SEIBERLING. What is your estimate in 1980 dollars, delivered cost?

Mr. MACKAY. Our current estimate is the range that Mr. McMillian mentioned earlier in his statement, $4.65 to $5.10 per million Btu's, the midrange being $4.85.

Mr. SEIBERLING. That is a 20-year average?

Mr. MACKAY. Twenty-year average, and that includes the gas costs. Now you need to be careful that it is always including gas costs. Sometimes figures are presented that are transportation costs only and it is that type of thing that one has to be careful that we are talking the same time periods and the same cost components.

Mr. SEIBERLING. Well, I must say that I think we have to review this whole thing all over again, and I haven't come up with any particular conclusion. But this is not free enterprise when the public is committed by this decision, if we permit these waivers, to accept this kind of cost regardless of whether that is the going market price, otherwise or not. So, I think we need to look at this whole thing de novo.

Thank you.

Mr. MCMILLIAN. That is why we are asking FERC to evaluate these costs and that the project costs will be just and reasonable like they usually do for our industry. We are not asking you to review these costs, but to be reviewed by FERC and we are asking these waivers to be brought into place to allow us to go to FERC for their review.

Mr. SEIBERLING. Could you tell me one other thing. Why is it necessary for the producers to have equity shares? Why aren't they willing to provide just loans?

Mr. MCMILLIAN. Well, we tried to do that, and they didn't like that. I don't blame them. We tried that, and we need their financial strength to privately finance it, and they say that if they are going to put money in the project, they want to have an equity earning on their investment as most companies do.

We tried to talk them into that but they were hard to talk into that.

Mr. UDALL. It is Mr. Benedict's turn, but Mr. Brown has a question.

Mr. BENEDICT. I would be delighted to yield to my colleague.

Mr. BROWN. Mr. McMillian, if I have this figured out, the oil companies get the conditioning plant, and they would have the right to use the natural gas liquids, and there would be some profits from that after the gas has been conditioned, and you have the residuals?

Mr. MCMILLIAN. No, sir.

Mr. BROWN. Who gets the natural gas liquids?

Mr. MCMILLIAN. We will be buying the gas from the wellheads. I think the way they word it is "guts, feathers, birds and all," so the project will be processing the gas and liquids that will be recovered. Most of the liquids, of course, the highest Btu gas will be sent through the system, and the plant will recover those costs.

Mr. **Brown**. So that then that will be a net back not to the oil companies, but to the pipeline companies?

Mr. **McMillian**. Yes, sir, to the plant.

Mr. **Brown**. Who gets the profit from the sale of that product?

Mr. **McMillian**. The consumers, to the project. It will be given credit in the cost of service.

Mr. **Moody**. I was reflecting that if the shippers buy the gas at the wellhead and liquids are extracted in the plant and there is a value to be ascribed to the liquids, it would be our belief that what we will file at the FERC will be a tariff structure that would require a crediting for the value of those liquids, whatever that value might be, back to the cost of service, thereby reducing the transportation cost through the system to be paid by the consumer.

Mr. **Brown**. Who actually markets those liquids?

Mr. **Moody**. It would be incumbent upon the owner of the plant to market the liquids.

Mr. **Brown**. The pipeline—maybe I will follow up another time—as a public utility gets an incentive rate of return. In other words, you are in effect guaranteed a return on your investment if the project makes any money because that is the way the regulations work. Is that correct?

Mr. **McMillian**. Yes, sir.

Mr. **Brown**. Banks get their interest rate on the money that they have put up for the project?

Mr. **McMillian**. Yes, sir.

Mr. **Brown**. The consumers get——

Mr. **McMillian**. They get the energy source and best energy bargain we have available today.

Mr. **Brown**. At whatever the price, whatever the market will carry at that point?

Mr. **McMillian**. Yes, sir; as we have described, the net economic benefit to the country is somewhere between $40 billion and $90 billion. Most of that goes to the consumer.

Mr. **Brown**. You understood my question earlier about what happens if when the gas is to be sold to its ultimate consumers in the United States, wherever, the price at which you will be obliged to sell it to make a profit or get a return on your investment is such that people decide they don't want to buy gas at that price, then what happens?

Mr. **McMillian**. Well, of course, this total gas volume represents about 8 percent of the total gas supply of the 10 transmission companies that are involved in the project. Of course, the only time that these conditions could occur, in our opinion, would be the first 2 or 3 years of the life of the project. After that, that gas rapidly declines below competing energy sources at that time.

Mr. **Brown**. Based on what assumption, Mr. McMillian?

Mr. **McMillian**. This is based on what cost of energy?

Mr. **Brown**. Based on what assumption about the Alaskan gas declining below the price of competing products.

Mr. **McMillian**. The actual figures, transportation cost and cost of gas now in existence compared to what we think that the oil equivalent price will be at that time.

Mr. **Brown**. Somebody's estimate?

Mr. **McMillian**. Yes, sir.

Mr. **Brown**. Thank you, Mr. Chairman.

Mr. **Sharp**. The gentleman from California?

I guess the gentleman from West Virginia. He is recognized for 5 minutes.

Mr. **Benedict**. Thank you, Mr. Chairman.

Mr. McMillian, I would like to turn for a few moments, please, to one of the requested waivers that, if granted, will allow the producer companies on the North Slope to take an active participation in this project.

I would like, if you would, please, to spend a few moments discussing with us how you see that equity participation evolving, how you see the capitalization of this project develop as between debt and equity in terms of participation of producers and in terms of total capitalization, and in dollar terms, because I think, if I understand the billing waiver that is requested, it is important how much of this project is debt and how much is equity because only that part may be early billed, which is actual out-of-pocket and debt service, and no earning on equity may be early billed.

So, could you discuss using that equity waiver, please?

Mr. **McMillian**. Yes, sir. The equity waiver for the producers has been brought about by the need for their financial strength to privately finance. Initially they offered to put up 40 percent of the project. Recently they are taking a very firm position on only 30 percent of the debt and equity and support.

We think that is a good place for them to start. But they are always looking at this—we are—as a minority position. It could be that they have 49 percent or 45 percent, but we think the control will always be in the gas transmission industry hands.

I think that is to our interest and national interest. I think they are agreeable to that.

Mr. **Benedict**. So when you were speaking in terms of 30 percent, you said debt equity so that would be——

Mr. **McMillian**. I am sorry. The percentages I was mentioning about the 30 percent and others are the percentages that producers would have in the equity compared to the transmission companies.

The debt equity ratio of 25 percent and 75 percent would be constant for the entire project, and so the equity components is what I was talking about, the 25 percent.

Mr. **Benedict**. You have fixed in the overall debt equity ratio of the project at 75, three to one?

Mr. **McMillian**. Yes, sir.

Mr. **Benedict**. Would it not be to the consumer's interest to shift that to more equity and less debt?

Mr. **McMillian**. Well, there is some question among the transmission companies that since we have to support debt, is that really equity. Of course, we are going to support that under the present plan.

That question has been brought up, whether we should get a debt return on that support that we are giving to the project, or an equity return. Of course, it is our choice if we have to put equity into it or a debt support type commitment, to have the highest return possible to our stockholders from that investment.

So, from that standpoint, it is more desirable, but I think we are also limited in that because that does increase the cost of the gas to the consumer over the life of the project.

Mr. **Benedict**. What increases the cost of gas to the consumer?

Mr. **McMillian**. If we had earnings on equity where, after tax earnings, and the earnings on equity which say could be 17.5 percent to this project after taxes, compared to what an interest rate would be at 12 to 14 percent. So that incremental cost would be part of the cost of service to the consumer.

So the lower the equity portion is, the lower the cost to the consumer is.

Mr. **Benedict**. I understand. This equity waiver really then allows oil companies to participate that you wouldn't have gotten otherwise, but wouldn't change the total financing?

Mr. **McMillian**. No, sir, it just allows a strong credit source behind the project that is badly needed.

Mr. **Benedict**. Thank you very much.

Mr. **Sharp**. Thank you.

The gentleman from California is recognized for 5 minutes.

Mr. **Dannemeyer**. Mr. McMillian, I want to explore, if I could, briefly in my time what happens with this project, supposing this waiver is granted and you go to those prospective lenders.

Aren't those lenders going to insist that you have long-term contracts for the purchase of the gas that will come out of this pipeline?

Mr. **McMillian**. Yes, sir, they will.

Mr. **Dannemeyer**. One of those long-term purchasers will be, I suppose, P.G. & E?

Mr. **McMillian**. Yes, sir.

Mr. **Dannemeyer**. What is the length of those contracts likely to be?

Mr. **McMillian**. They have, but they will probably insist it be for the amortization of the debt period, and that will probably be 20 years.

Mr. **Dannemeyer**. Twenty years. Then the price that those companies, purchasers of that gas will pay, will be fixed by FERC. Is that correct?

Mr. **McMillian**. NGPA. It has already been fixed by law in NGPA.

Mr. **Dannemeyer**. So that gas company that receives that gas and will then distribute it to consumers will mix the gas it gets from Alaska with its other sources, correct?

Mr. **McMillian**. Yes, sir.

Mr. **Dannemeyer**. That point brings me to this concern. There is data that indicates that the wellhead price, on average, in 1980 is about $2 per MCF for domestic gas, and the data that I have seen for this project is that it will be $15 to $18 per unit in 1987 dollars, which comes out to about $9 to $10 per MCF in 1980 dollars.

So to sum it up, if price regulation on lower 48 gas continues as it presently exists, executives of domestic companies buying your gas will have to compare the mixing of $2 1980 dollar gas with $10 1980 gas.

They are going to have a vested interest in keeping, as long as they can, that lower priced gas, which to me says they are going to be inclined to support the continued regulation of natural gas prices.

Isn't that a logical conclusion?

Mr. **McMillian**. Well, I think they will be looking at the factors that you have mentioned that are very important to them. But they will also be looking 20 years in the future when this overall gas price will be $4.85 over a 20-year period.

Your domestic gas supply will not stay at the price it is now. Some of your new increments of gas supply are now selling for $9.60 to $9.80 per million Btu. So, I think they are looking not only at what happens today, but what happens tomorrow and the day after where they have a secured energy source and gas supply source where the ultimate cost is much lower than anything you can look forward to in the domestic scene.

Mr. **Dannemeyer**. Does your company have a position on removing price controls of existing natural gas supplies in this country?

Mr. **McMillian**. On deregulation?

Mr. **Dannemeyer**. Yes.

Mr. **McMillian**. Well, because of this project and because of the other things we are doing—there has been nothing brought forward, and we haven't taken a position. We think that the project, even if deregulation takes place—and it can take place—when you say deregulation, there are a lot of forms of deregulation, and we think that the project is economically viable under every phase of the deregulation aspects that you can bring forth.

Mr. **Dannemeyer**. Is the project you are talking about for which this waiver package is sought consistent with immediate deregulation of natural gas prices in this country?

Mr. **McMillian**. It doesn't have—they are not connected in any way.

Mr. **Dannemeyer**. In your opinion.

Mr. **McMillian**. If you are asking me if the gas will be marketable under deregulation, the gas will be marketed because the marketplace is going to dictate what the price is going to be.

In the first year or two, rather than using the roll-in capacity we have available, there might be some levelizing or adjusting of gas cost, et cetera, by reduction in depreciation or reduction in wellhead price in the early years that can be made up in later years as the marketplace allows.

So, it will be fit into the market structure under those conditions that you mention.

Mr. **Dannemeyer**. You didn't exactly answer my question, yet in a way you did. If I heard what you said, there is somewhat of an inconsistency between immediate deregulation of natural gas prices and adoption of this waiver package. Is that what you are saying?

Mr. **McMillian**. No, I am saying the project and immediate deregulation would still fit into the market structure for this gas in the Lower 48, but we would have to have probably some levelizing of our transportation costs and wellhead costs in the early years to make it competitive.

Mr. **Dannemeyer**. Have the prospective lenders with whom you have dealt indicated to you that they, from a policy standpoint, are asking you as proponents of this waiver package to ask the administration to delay, defer or postpone immediate deregulation of natural gas prices?

Mr. **McMillian**. No, sir, they have never asked that, and neither have I.

Mr. **Dannemeyer**. I thank the chairman.

Mr. **Sharp**. The Chair will recognize Mr. Weaver for one other additional question here before we end for the day.

Mr. **Weaver**. Thank you, Mr. Chairman.

Mr. McMillian, we have been arguing over 1980 or 1987 dollars. But you did call the Wall Street Journal story nonsense. Would you tell us what you project to charge, or what would be the delivered charge for this gas at 1,000 cubic feet, or million Btus, which are roughly the same, in 1987? What is the figure that you have anticipated?

Mr. **McMillian**. You are talking about 1987 dollars?

Mr. **Weaver**. 1987, right. What is your figure, sir? I have it before me, but I would rather you say.

Mr. **McMillian**. What interest rate do you want us to assume?

Mr. **Weaver**. I am using your figures.

Mr. **McMillian**. The 9 percent, 12 percent?

Mr. **Weaver**. I am using your figures. Please tell us.

Mr. **MacKay**. Those figures you displayed there are not our figures.

Mr. **Weaver**. Excuse me. Federal inspector's figures. Somebody told me they were yours. I am asking you what you anticipate the delivered charge for 1,000 cubic feet of natural gas will be from your pipeline in 1987.

Mr. **MacKay**. In 1987 dollars?

Mr. **Weaver**. The cost. I should say the cost. In 1987, right. In 1987, the actual.

Mr. **MacKay**. It varies again with inflation and interest rates.

Mr. **Weaver**. Sure.

Mr. **MacKay**. Over a range. I guess our midcase of 9-percent inflation would be somewhere around $17.

Mr. **Weaver**. $17 a thousand cubic feet?

Mr. **MacKay**. For the first year.

Mr. **Weaver**. What would the cost of construction be, using the same data?

Mr. **MacKay**. That is the figure that Mr. McMillian mentioned earlier of $23 billion in 1980 dollars and $43 billion——

Mr. **Weaver**. $43 billion. So the Wall Street Journal story was not nonsense, was it?

Mr. **McMillian**. I didn't read that man's article. To me, if you want to enter into an argument about the writer for Wall Street Journal, I will sure do that because I think most of them take half the facts and twist the article.

Mr. **MacKay**. It is wrong because he relates those to current costs. That is why it is wrong.

Mr. **Weaver**. Your testimony is now that the midpoint estimate is $17 a thousand cubic feet and $43 billion cost. That is all I wanted to clear up, Mr. Chairman. That is exactly what I had thought.

Mr. **Sharp**. Thank you.

Mr. McMillian, I wanted to ask you a question that has been raised by others outside the chamber, will undoubtedly be raised at some point during this debate. It isn't directly relevant to the waiver package, but people are asking, where are you going to get the materials to build this pipeline. Mainly the steel, obviously, is the great question.

Mr. **McMillian**. Well, most of the moneys are going to be derived through the world for this project. A lot of the products will be derived throughout the world for this project. Today there is not a steel mill in the United States that can make Arctic steel of 48 inches diameter pipe.

However, I have talked to Mr. Roderick with United States Steel. They have hired Sumi Tomo, the Japanese steelmaking company, and are going to make major plant revisions to revise their Baytown plant to be able to build Arctic grade pipe.

We hope they are able to do that, and we have encouraged them to do so. We are working with them on some test pipe today, hoping we can get some test pipe out to run tests on it.

If you are asking if we had a choice to buy products, our choice is American products where available. We have pressure on us to be competitive in price. I think if you look at our record, especially Northwest's, we bought 100 percent of U.S. pipe for everything that we have done. It speaks for itself.

We are working now with United States Steel and other pipe manufacturers, hoping that the quality control and Arctic grade pipe can be produced in these plants.

Our financing that we are structuring today is for a system where we are using the credit source of the groups involved and the banks involved without outside supplier credit. It is something that will have to be considered.

Mr. **Sharp**. Is there a possibility you are going to run into requirements of investors elsewhere, or governments of investors elsewhere, whether in Canada, Europe or anywhere else, that you must purchase portions from steel mills or whatnot? In your effort to finance this, have you run into that problem?

Mr. **McMillian**. It is certainly easier to do that in some countries than others. On the northern border project I think we bought 60 percent of our pipe domestically, the rest foreign. We did that not so much from price or credit, because no credit was obtained, but because of the limit of supply of the American mills that was available at that time.

So, that is a factor that limited us in the northern border project pipe purchase, but there will be pressures like you mentioned.

Mr. **Sharp**. In your looking for and looking at bids on pipe for the Alaskan section, for example, you indicated so far no American producer was in a position to provide the necessary pipe, if I understand you, but U.S. is examining alterations in their production and hope they make a successful bid on that.

Was the difficulty that American steel companies simply didn't have the appropriate facilities to make the quantities, or was the problem the quality of the pipe being produced did not meet the standards you felt were necessary, or all of those factors?

Mr. **McMillian**. All of the above. It is embarrassing to us, and I am sure it is embarrassing to them. We rated over 12 steel companies in the world that could produce 48-inch diameter pipe. Unfortunately, our steel mill that can produce 48-inch diameter pipe was at the bottom of this list and they just don't have the automation and the quality control and assurances that some other countries have.

Mr. SHARP. In other words, it wasn't even a question of the price differential. It was just pure and simple could they get in and compete on the basis of producing the quality steel that you could use in the pipeline.

Mr. MCMILLIAN. Right. We think that they can, and with major modifications and major help from the Japanese, I imagine it made United States Steel choke to go to ask for the Japanese for it, but with that help and with modifications, that they can produce it. And they should, but they can't.

Mr. MACKAY. It might be helpful to point out, too, that Mr. McMillian is speaking only about the Alaska section, and of the little less than 1,000 miles already under construction for the prebuild, as he mentioned, 67 percent of that total western and eastern leg is domestic pipe. The completion of those facilities, which is a little over 1,000 miles, can use domestic pipe from several mills.

So, of the total of some 2,800 miles of U.S. pipe, we are only really speaking of 745 miles that at the present time can't be manufactured in the United States.

Mr. SHARP. Well, many of us find it rather disturbing that our competitive edge in many areas is not what we would hope it would be. That is not your function at the moment.

Mr. MCMILLIAN. I will tell you what makes you choke more than that is that we are looking at about a $4 billion capacity from all the banking community that we have available. And you go to a country like Canada, with 10 percent of the people that we have, they are looking at supporting $3.5 billion of this project.

You go to the European countries with much smaller worth and much smaller assets than we have, and their banking capacity is so much greater than ours that it is really embarrassing.

That really makes you choke. We need some help and revision in law here, probably as much as anyplace.

Mr. SHARP. Maybe you should help me understand and repeat that. If I understand correctly what you are saying, the capacity of our banks to raise capital that could be invested in this is only slightly greater than in Canada, and less than it is in Europe. Is that what you are saying?

Mr. MCMILLIAN. Yes, sir, that is correct. That really makes you choke. That is why in some areas we have to get as strong a financial structure behind the project as possible, because we are going to the international money markets to raise funds for this project because that is where we have to go.

So, there are two chokes. There have been a few others, but both of them make you choke a little bit.

Mr. SHARP. Let me, if I could, identify an earlier question I wanted to ask you that is not along the same vein, and you touched upon it in one of the questions you answered. But if I understand, the letter from the banks to you in August discussed the necessity from their point of view of the sponsoring companies having their assets available for debt recovery on uncompleted segments of the line.

If I understand correctly on the waiver system, that means if you never reach the point of triggering prebilling, they are asking you to put up the sponsoring company's assets to cover the debt to that point?

Mr. McMillian. Yes.

Mr. Sharp. Did I understand you to say the sponsoring companies are in fact willing to do that?

Mr. McMillian. Yes, sir, within the limits of our capacity. Like we have committed over $8 billion, and personally our company $1.5 billion—$500 million equity and $1 billion debt support. If something did happen where that wouldn't be completed, why, then, we would lose those funds.

Now we don't think that is a possibility. We don't think that is going to happen. That is why we are willing to put the severe commitment that we have behind the project.

Mr. Sharp. Mr. Dannemeyer, do you have further questions?

Mr. Dannemeyer. I will just add one thing, if I may. I wasn't in the Congress when this issue of which route to adopt was considered, but as a representative of taxpayers and consumers, I am still interested.

If we had moved this, or tried to move this gas by a gas pipeline contiguous to the existing oil pipeline and then put it in tankers at Valdez and shipped it down to a place in California—I believe now it would be Point Conception—how would the cost of that project of transmitting this gas to market compare with what we are now facing?

Mr. McMillian. Well, no disrespect to your State or your Governor, that a "place" in California, I don't know whether that is going to happen. I hope you do get a LNG terminal, but there was no comparison in economics. I mean, they were not competitive economically in transportation then or now. As well as I remember, they were some 25 or 30 percent higher at that time.

I think it is 25 or 30 percent higher in gas cost at that time with a very questionable distribution system throughout the United States of all that gas choking into California and being able to put into the Midwest and other places, Indiana, Ohio and those places.

It was 25 to 30 percent, to answer your question, if you had a terminal.

Mr. Dannemeyer. You mean the Valdez route was 25 percent higher than the route we are talking about?

Mr. McMillian. Yes, sir.

Mr. Dannemeyer. Thank you.

Mr. McMillian. Every other system you look at, you look at all of them, and environmentally, economically, every other factor, we were superior then, we will be superior now to meet a dollar cost or anything else you want to bring forward.

Mr. Sharp. Mr. McMillian, we appreciate your time this afternoon, and because we have a rather extended hearing schedule, it may well be that additional questions, as our members get more into the subject, will come to their minds.

I would hope that we could call on you, I trust, in writing to respond, though there might be at some point some desire, if you would be willing, to return. I don't envision that at this point.

We appreciate the fact you have invested a great deal of time, effort, and money into this project, and I don't think the members of the committee will take it lightly. It is obviously a difficult problem facing many members here, and they are trying desperately to get up to speed on the facts before they have to make a decision, which, of course, has to come in the next 30 days within the committee and within the next 60 days in the Congress.

Thank you very much for your cooperation.

Mr. **McMillian**. Thank you.

Mr. **Sharp**. The committee will meet tomorrow afternoon at, I believe, 2 p.m., but it is in another room, B-318, which unfortunately will be a little more crowded.

Thank you very much.

[Whereupon, at 4:30 p.m., the subcommittees adjourned, to reconvene at 2 p.m., Thursday, October 22, 1981.]

ALASKA NATURAL GAS TRANSPORTATION SYSTEM

THURSDAY, OCTOBER 22, 1981

House of Representatives, Subcommittee on Fossil and Synthetic Fuels, Committee on Energy and Commerce; and Subcommittee on Energy and the Environment, Committee on Interior and Insular Affairs,

Washington, D.C.

The subcommittees met, pursuant to notice, at 2 p.m., in room 2154, Rayburn House Office Building, Hon. Philip R. Sharp (chairman, Subcommittee on Fossil and Synthetic Fuels) presiding (Hon. Morris K. Udall, chairman, Subcommittee on Energy and the Environment).

Mr. **Sharp**. The hearing will come to order.

Today is our second set of hearings with respect to the proposed waivers of law for the Alaska Natural Gas Transportation System.

Yesterday we heard from the Secretary of Energy and the project sponsors. Today we are going to have three panels of witnesses: First, those representing the interstate natural gas pipeline companies who are partners in the project; second, the major oil companies who have joined in the project with respect to providing financial assistance; and third, the four major banks which have been advising the partnership about raising the billions of dollars of debt capital that will be necessary if the waive proposal is adopted.

So, we are delighted to have with us the U.S. pipeline partners with respect to the transportation system. I believe Mr. Kalen is our leadoff witness on the panel.

Gentlemen, if you will identify yourselves for the record, we will be happy to hear from you at this point.

STATEMENTS OF KENNETH E. KALEN, GROUP VICE PRESIDENT, PANHANDLE EASTERN CORP.; J. HUGH ROFF, JR., PRESIDENT AND CHIEF EXECUTIVE OFFICER, UNITED ENERGY RESOURCES, INC.; HARRY L. LEPAPE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, PACIFIC INTERSTATE TRANSMISSION CO.; GEORGE H. EWING, PRESIDENT, TEXAS EASTERN GAS PIPELINE CO.; JOHN H. CROOM, PRESIDENT, COLUMBIA ALASKAN GAS TRANSMISSION CORP.; AND ROBERT P. RAASCH, PRESIDENT, NORTHERN ARCTIC GAS CO.

Mr. **Kalen**. Thank you, Mr. Chairman.

If it pleases the Chair, we thought I would go first and then just go around the table. We presume that our full comments will be made part of the record.

Mr. **Sharp**. Without objection, the written materials you have provided us will be a part of the record and any oral comments, of course, can be taken down and be part of the record.

Mr. **Kalen**. Thank you, sir.

My name is Kenneth Kalen. I am group vice president of Panhandle Eastern Corp. and Panhandle Eastern Pipe Co. and president of Pan Alaskan Gas Co. The latter two companies are wholly owned subsidiaries of Panhandle Eastern Corp.

Panhandle Eastern Pipe Line Co. will be a purchaser of Prudhoe Bay gas and will be a gas shipper through the Alaskan pipeline. I represent Pan Alaskan on the board of partners of Alaskan Northwest Natural Gas Transportation Co. I also serve as cochairman of the design and engineering board.

After extensive negotiations between pipeline sponsors and major Prudhoe Bay gas producers, a cooperative agreement was entered into creating the design and engineering board.

The purpose of the board is to control the design, engineering, construction planning, data gathering, and cost estimating of the gas pipeline and the gas conditioning facilities to be constructed within the State of Alaska. All participants provided expertise in various areas as needed, with particular emphasis on arctic construction and operating experience.

We believe there is a clear and urgent need for access to the Prudhoe Bay reserves and other potential Alaskan reserves which should be developed once the pipeline is in place.

The present excess deliverability from existing reserves and reduced demand, commonly referred to as the "gas bubble," is often erroneously interpreted as a permanent solution to the Nation's gas supply needs. Actually, the entire industry has been unable to add reserves equal to production during the period 1968 through 1979, in the lower 48 States.

The Natural Gas Policy Act of 1978 has stimulated additional drilling activities in the lower 48 States. However, the amount of gas reserves discovered per foot drilled has decreased substantially. The message is clear—gas reserves are hard and harder to find.

In conclusion, as a representative of my companies, and in the interest of the customers we serve, we strongly support the need for this pipeline project, which will supplement our total supply to our system when the facilities will be available in approximately 1987.

I respectfully request this committee to support the President's waiver request. We cannot assure the committee at this time that private financing will be possible with these proposed waivers. However, we can assure the committee that without the approval of this waiver package we absolutely cannot privately finance the project and the present sponsors will be obligated to carefully reevaluate their financial support for this important pipeline project.

[Testimony resumes on p. 387.]

[Mr. Kalen's prepared statement and attachments follow:]

Before The
SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT
OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
and the
SUBCOMMITTEE ON FOSSIL AND SYNTHETIC FUELS
OF THE
COMMITTEE AND ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

October 22, 1981

Statement of Kenneth E. Kalen, Group Vice President
of Panhandle Eastern Corporation

Panhandle Eastern Corporation is a diversified energy company whose activities include the acquisition, transmission and sale of natural gas in interstate commerce. Its two gas transmission subsidiaries, Panhandle Eastern Pipe Line Company and Trunkline Gas Company, operate a gas transmission system consisting of 16,000 miles of pipeline and 1.2 million horsepower installed in field and mainline compressor stations. The systems supply natural gas to 130 investor-owned utilities and municipal distribution companies. The utility customers, in turn, supply gas to a market area of 24 million people in 12 states, primarily Michigan, Ohio, Indiana, Illinois and Missouri. The systems supply approximately 6 percent of the national total gas consumption. The assets devoted to natural gas transmission amounted to $1.982 billion at the end of 1980 and transmission employees number 4,245. The principal source of Panhandle Eastern Pipe Line Company's supply is the Anadarko Basin, the Denver-Julesburg Basin, the Powder River Basin and Green River Basins of Texas, Oklahoma, Kansas, Colorado and Wyoming. The principal source of Trunkline's supply is the on- and off-shore Gulf coast area of Louisiana and Texas. Attachment 1 shows the location of the pipeline systems and present sources of gas supply.

There is a clear and urgent need for the Prudhoe Bay gas, and in our view, the gas will be marketable in our service area when it comes on-stream. Transporation of natural gas by pipeline is clearly the most efficient and least costly method of getting gas to consumers. Further, as you gentlemen are well aware, the pipeline will offset the need to import 400,000 to 600,000 barrels of foreign oil per day. I will briefly discuss each of these points.

Need for the Prudhoe Bay Gas

Panhandle and Trunkline have long been actively seeking to develop new sources of gas through programs for both conventional and supplemental supplies. Generally, our share of national gas reserves has declined about the same as the decline for national reserves.

Attachment 2 shows the production, reserve additions and the reserve inventory for the lower 48 states during the period 1968 through 1979. The blue bars on the upper portion of the graph show the amount of natural gas produced each year from wells in the lower 48 states. You will note that production peaked at just over 22 trillion cubic feet during 1972 and 1973, and has declined to just under 20 trillion cubic feet during 1979. Production during 1980 amounted to 19.5 trillion. The yellow bars on the upper graph show the annual additions to proved reserves resulting from drilling in the lower 48 states. At no time since 1968 has industry in the United States been able to add proven reserves to inventory in volumes that come close to equalling annual production. The best performance in this period came in 1979 when approximately 14 trillion cubic feet of proved reserves were added as compared with 20 trillion cubic feet of production. During the five years ending with 1979, only 56 percent of production was replaced by additions to proved reserves. The lower portion of this chart shows the impact of producing more gas than is being found in the lower 48 states for the period 1968 through 1979 and clearly shows the tremendous need for Alaskan gas.

Attachment 3 shows the millions of feet of hole drilled during the period 1966 through 1980. The graph separates the drilled footage into three categories:

1. The top line connecting the circles represents the total feet of hole drilled. This includes both development and exploratory footage.

2. The middle line which connects the boxes shows the drilling footage for development wells.

3. The third line which connects the triangle shows exploratory footage drilled.

Attachment 4 records footage drilled in the lower 48 states. Again, the top line connecting the circles shows total footage drilled, both exploratory and developmental. The middle line connecting the boxes shows the total footage of hole in wells that were completed as producers of oil or gas. The bottom line connecting the triangles shows the footage of hole contained in all wells completed as gas wells during the years 1965 through 1980. Attachment 5 is a plot of natural gas finding rates for the period 1966 through 1979. You will note that the finding rate is recorded in terms of "Mcf" (thousand cubic feet) of reserves per foot of successful gas wells drilled. During 1967, for each foot of successful gas wells completed, approximately 600 Mcf of new reserves were found. Since that time, the finding rate has declined steadily, and in 1979 only 120 Mcf was found for each foot of successful gas well drilled. The message of this chart is that gas is getting harder and harder to find.

Attachment 6 combines the footage and finding rate projections into a projection of proved reserve additions through the year 2000. The left hand side of this chart shows historical reserve additions averaging somewhere in the order of 10 trillion cubic feet per year during the last ten years. We forecast that reserve additions in the lower 48 states will increase to a level of 14 or 15 trillion cubic feet for 1985, and then will start to decline during the last 15 years of the century. Although we may have a few big years for reserve additions during the next 20 years, we do not think that, on the average, reserves can be added in the lower 48 states to continue to suppport production rates of 20 trillion cubic feet per year. In forecasting future reserve additions we assumed that the pricing incentives of the Natural Gas Policy Act of 1978 would remain intact.

Panhandle and Trunkline system anticipates (forecasts) that the annual deliverability from committed gas supply will decline from approximately 930 billion cubic feet to approximately 350 billion cubic feet in 1987 when Prudhoe Bay natural gas comes on stream.

Attachment 7 shows our forecast of the annual volumes available for sale from the combined Panhandle Eastern and Trunkline systems. Of course, the figures shown prior to 1981 reflect actual sales figures. Sales declined during the early 1970s to a low of 771 billion cubic feet during 1976, reflecting the serious shortage of gas in those years. Since that time sales have gradually increased to 951 billion in 1979 and 927 billion in 1980.

The yellow bars shown on this graph for 1981 and the future years are what we refer to as "committed supply". This reflects our estimate of the volumes that will be available for the Panhandle and Trunkline systems under presently existing gas purchase contracts covering conventional lower 48 production. This is all of the gas that the two companies presently have under contract in the lower 48 states. We have our work cut out for us if our companies are to serve a 900 billion cubic feet annual market requirement in future years, and we are totally committed to that objective.

The green bars reflect 450 million cubic feet per day of LNG we have contracted to purchase from Algeria.

The solid blue portion of the bars represents 150 million cubic feet per day of Canadian purchases. Approximately 50 billion cubic feet per year of this gas will be made available to our systems through Northern Border pipeline over the 12-year period commencing in 1983.

The cross-hatched blue portion of the bars represents 150 million cubic feet per day of Alaskan gas to be purchased from the Prudhoe Bay field on the North Slope. This gas will reach the Panhandle system through the Alaskan gas transportation system which we hope will be in service by 1987.

The stippled blue portion of the bars represents volumes we had expected from our proposed coal gasification project in Wyoming into our system. That project has been delayed at least two to four years. This is the lease certain of future supply because of the enormous cost involved, perhaps $2 billion.

The red portion of the bars represents the volumes of conventional gas that we must purchase. If the Alaskan gas and LNG does not come on stream as expected, the shortfall required to be covered will be substantially larger as indicated by the graph.

Panhandle and Trunkline's gas supply forecasts are quite representative of the interstate pipeline industry as a whole--particularly as regards presently committed lower 48 supplies of conventional gas.

The foregoing demonstrates the immense need by Panhandle and Trunkline for the Alaskan gas. Not only is the gas tentatively contracted for, but we need to have available an opportunity to contract for the additional Alaskan gas expected to be discovered and developed. We believe 100 trillion to 200 trillion of gas reserves may be discovered and developed. Further, we believe that there is a possibility that gas will be discovered at various points along the Overthrust Belt which is within reasonable distance of the pipeline; hence, making more gas available. We will be permitted to compete for a share of these expected discoveries.

Because of today's excess natural gas producing capacity in the lower 48 states, many people are losing sight of the country's long term gas supply situation. Clearly the current surplus of gas productivity will not be long lived. Those people would probably look on this gas supply presentation as being very pessimistic. Panhandle's forecasts of future gas supply are not out of line with the great majority of definitive studies prepared by others. Attachment 8 shows the results of three of these studies. This chart compares forecasted natural gas demand to forecasted conventional gas supply for the years 1980 through 2000. The top graph represents Exxon's estimate. Of course, the difference between the demand line and the supply line represents Exxon's estimate of the shortfall in conventional domestic supply from meeting demand. The second graph shows the forecast of the Department of Energy. The third graph shows the forecast of the Gas Research Institute. Although each study differs somewhat, they all reflect a need for additional sources of gas if we are to meet the needs of the United States consumers.

Marketability

Jensen Associates, Inc. have prepared a marketability study for the pipeline group. That firm has for some time provided consulting services to Panhandle and Trunkline as to the demand for natural gas and alternative fuels. We believe that the Jensen report, covering the demand for the Alaskan natural gas, is conservative. The probability that the gas will not be marketable in the earlier years, unless it can be rolled in with the price of cheaper gas, is small. We believe the most likely scenario is that conditions by 1987 will be such that the gas will be marketable. If the conditions are not as expected, we would expect that the spread between the cost of Alaskan gas at the city-gate and the price at which it could be sold, will be small enough that a workable solution can be made through the regulatory process before the FERC.

Need for the Waiver of Law Package

Panhandle and Trunkline subscribe to the statements and presentation made by Northwest for the Partnership and subscribe to the statement of needs made by representatives of the lead banks with which the Partnership is dealing. The pipeline companies simply do not have the financial capacity to fund the Alaskan pipeline and the related gas conditioning facilities. Producer's equity and construction debt support participation will go a long ways towards creating conditions under which necessary capital can be raised.

We believe that the inclusion in the waiver of the provision which would permit the commencement of billing upon completion of a segment of the pipeline or a date certain, whichever occurs last, does not create an unreasonable risk assumption by consumer's groups. We believe that our customers want to be assured of a gas supply in the late 1980's and in the 1990's and want our companies to take action now so as to assure that supply.

Our companies cannot commit large amounts in an open-ended commitment to a project as large and risk-laden as the Alaskan project and be assured the companies remain financially viable so as to be able to continue to supply gas consumers' requirements. Further, the President's Decision in 1977 did not contemplate that the companies would support project debt. We believe that the greatest exposure to not completing the pipeline on a date certain would arise from actions of government including delays caused by litigation, not from the hostile environment through which the pipeline must be constructed. The waiver provision which would permit collection of billing upon completion of a segment of the pipeline will motivate the pipelines to complete sections on time by the date certain, and likewise, may afford some encourgement to governmental units to not unreasonably take any action which would delay completion of the project and placing it in service. It would, of course, permit collection of debt service revenues during such period of delay, and thereby, hopefully prevent the pipeline's Sponsors from being thrown into insolvency by reason of the money required to be paid during such delay.

The waiver seeking conditions of regulatory certainty for servicing debt, we submit, poses little if any risk to consumers. On the other hand, this waiver will provide assurance to potential lenders that a stream of income will always be there to repay debt and interest. This additional assurance, we hope and believe, will create necessary incentives to lenders to commit debt money to the project.

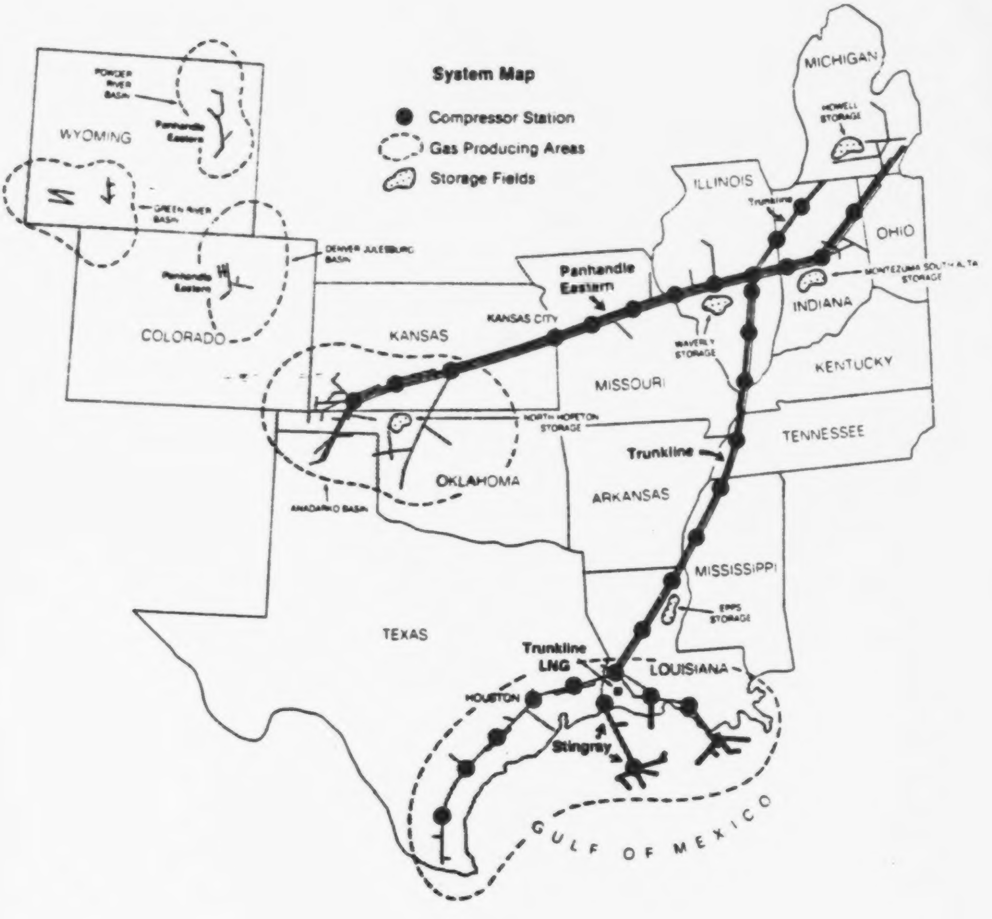
National Interests

The President, Secretary of State Haig and numerous others, in and out of government, have alluded to the enormous benefit to the nation by completion of the pipeline and the natural gas supplies it will make available. We agree. On the other hand, we must remain mindful of our duty to not place our pipeline companies in a position of financial vulnerability. We believe the pipeline will serve to strengthen ties between the countries of North America and will otherwise enhance security by reducing reliance upon foreign sources of oil and natural gas and improve this nation's balance of payments position.

Conclusion

Alaskan natural gas will be urgently needed in the late 1980's and thereafter. The proposed Alaskan pipeline offers the best mode of transportation of the gas to consumers. The proposed waivers of law are necessary for the obtaining of financing. We urge that the waivers be approved.

PANHANDLE EASTERN PIPE LINE COMPANY AND TRUNKLINE GAS COMPANY

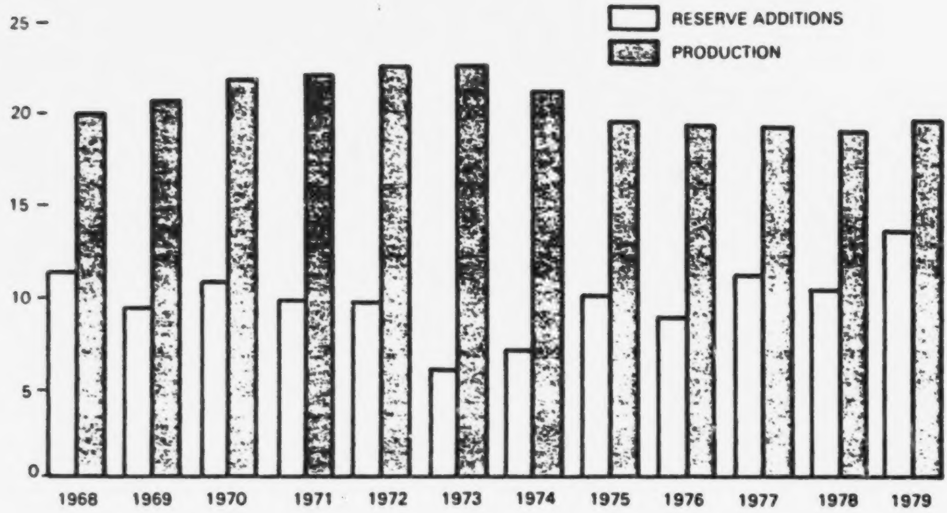

System Map
● Compressor Station
Gas Producing Areas
Storage Fields
POWDER RIVER BASIN
Panhandle Eastern
WYOMING
GREEN RIVER BASIN
DENVER JULESBURG BASIN
Panhandle Eastern
COLORADO
KANSAS
KANSAS CITY
Panhandle Eastern
MICHIGAN
HOWELL STORAGE
ILLINOIS
Trunkline
OHIO
MONTEZUMA SOUTH ALTA STORAGE
INDIANA
KENTUCKY
MISSOURI
WAVERLY STORAGE
NORTH HOPETON STORAGE
TENNESSEE
Trunkline
ARKANSAS
OKLAHOMA
ANADARKO BASIN
MISSISSIPPI
EPPS STORAGE
TEXAS
Trunkline LNG
LOUISIANA
HOUSTON
Stingray
GULF OF MEXICO

ATTACHMENT 1

NATURAL GAS—PRODUCTION AND RESERVE ADDITIONS

LOWER 48 STATES

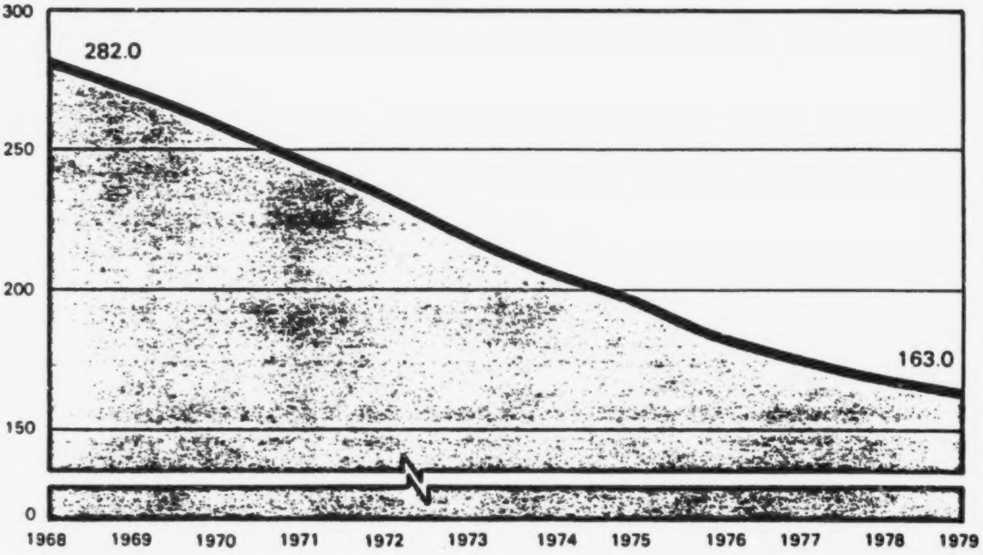
(TCF/YEAR)



NATURAL GAS—PROVED RESERVES

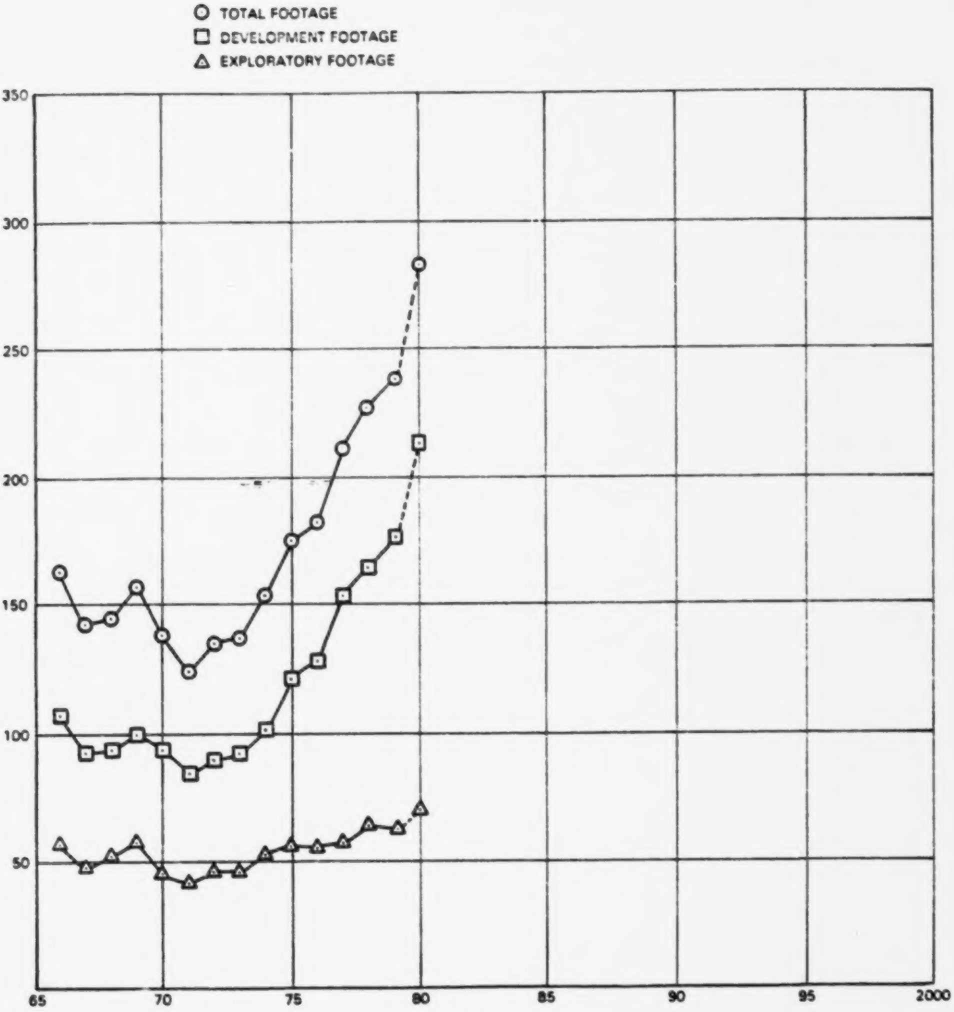
LOWER 48 STATES

(TRILLION CUBIC FEET)



April 1980

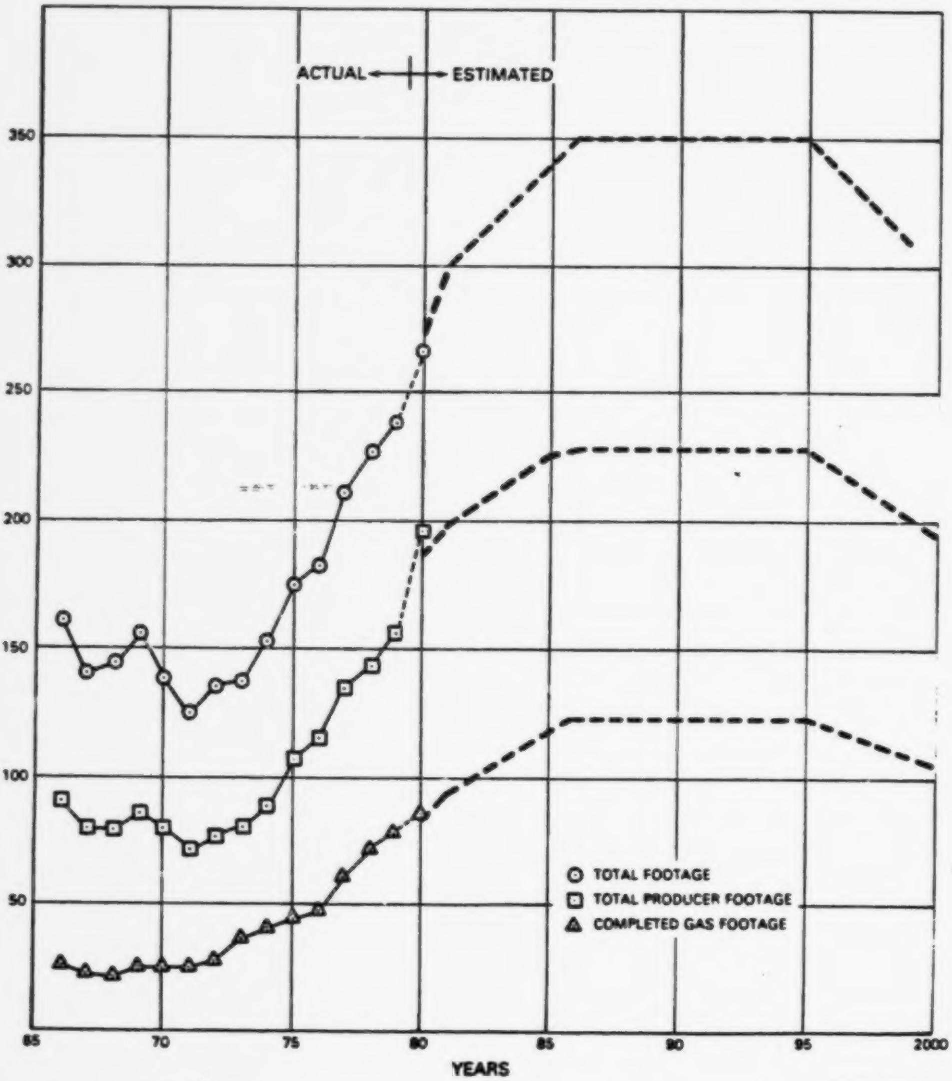
CONTIGUOUS UNITED STATES
DRILLING
MILLION FEET PER YEAR



APRIL/1981

ATTACHMENT 3

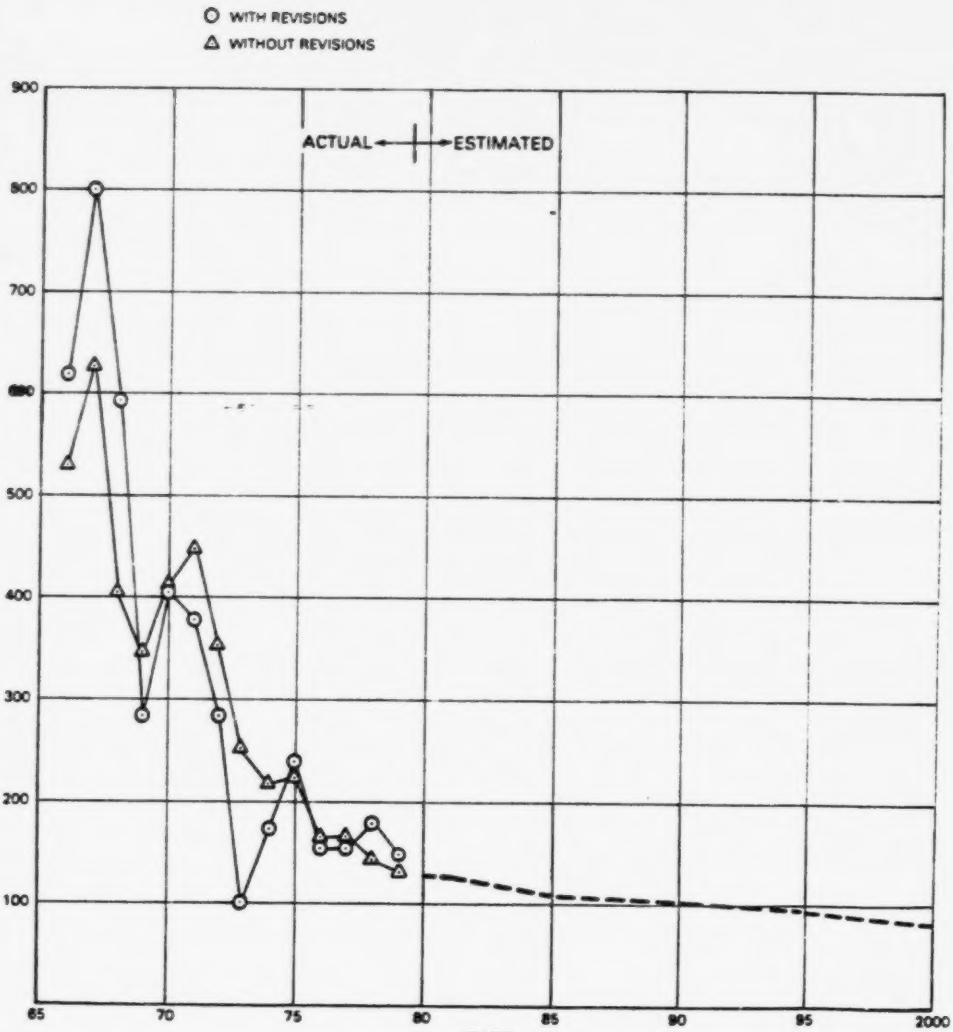
CONTIGUOUS UNITED STATES
TOTAL DRILLING
MILLION FEET PER YEAR



ATTACHMENT 4

APRIL/1981

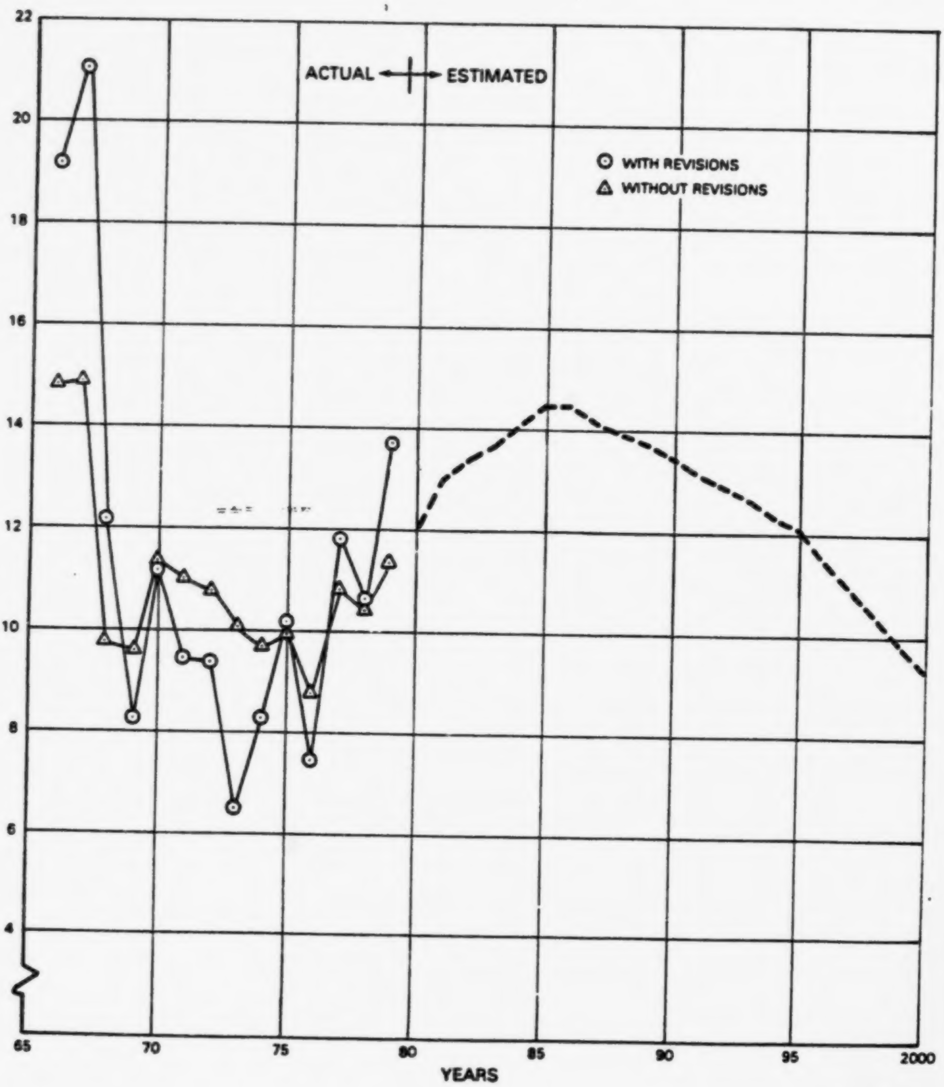
CONTIGUOUS UNITED STATES NON-ASSOCIATED GAS ADDITIONS MCF PER COMPLETED GAS FOOT TOTAL DRILLING



ATTACHMENT 5

APRIL/1981

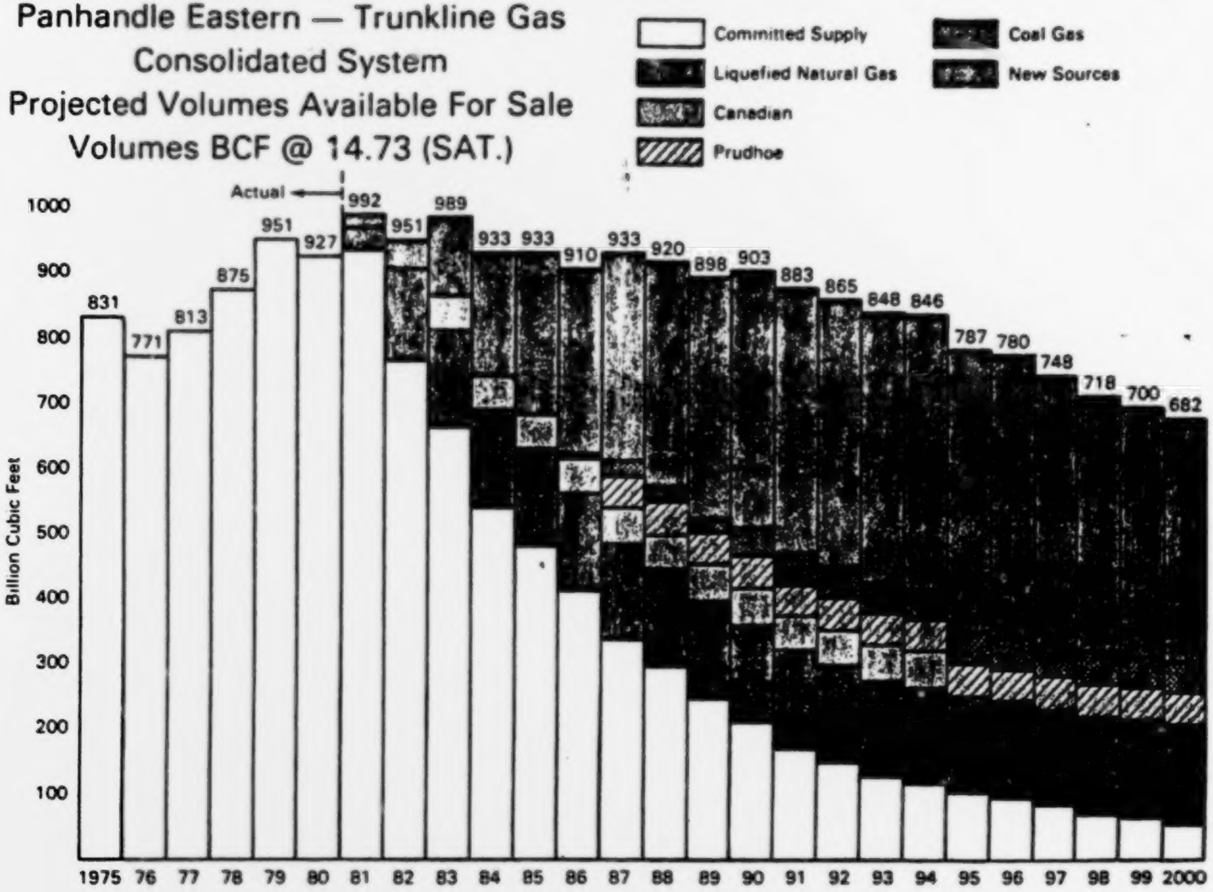
CONTIGUOUS UNITED STATES
ADDITIONS FROM TOTAL DRILLING
TCF PER YEAR



ATTACHMENT 6

APRIL/1981

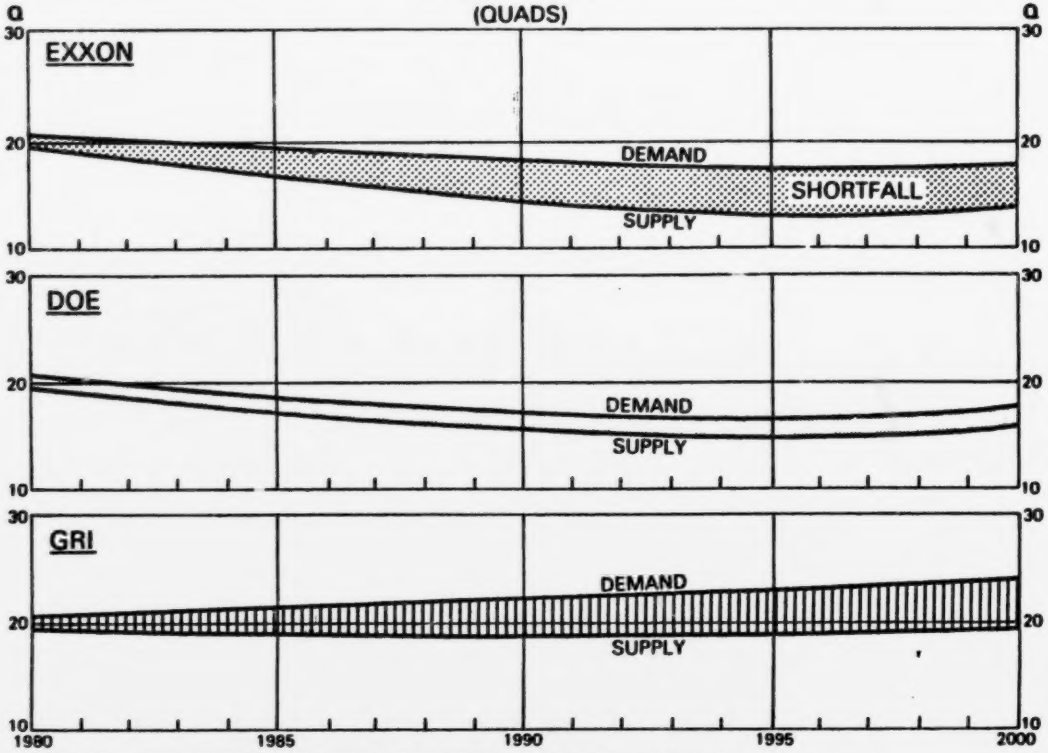
Panhandle Eastern — Trunkline Gas Consolidated System Projected Volumes Available For Sale Volumes BCF @ 14.73 (SAT.)



APRIL 1981

ATTACHMENT 8

COMPARISON OF DEMAND WITH CONVENTIONAL DOMESTIC SUPPLY
1980 - 2000
(QUADS)



Source: Exxon Energy Outlook, DOE Forecasts Through 2020 & GRI Future Demand Scenario

Mr. SHARP. Thank you.

STATEMENT OF J. HUGH ROFF, JR.

Mr. ROFF. Mr. Chairman, I am Hugh Roff, chairman and chief executive officer of United Energy Resources, Inc., which is a diversified energy company having as its principal company United Gas Pipe Line Co.

United Gas Pipe Line Co. is a partner in the Alaskan Natural Gas Transportation System, both in the Alaskan segment and also in the northern border segment, which is now under construction.

We have entered into a letter of intent to purchase 100 million cubic feet a day of gas from the producers on the North Slope of Alaska when that gas comes to market through the Alaskan system.

United Gas Pipe Line Co. is the principal supplier of gas to the gulf south region of the United States, and through sales to other pipeline companies is a supplier of gas throughout the eastern half of the United States.

United Gas Pipe Line sells to some 400 distribution companies, to about 180 direct industrial users and to five other major interstate pipeline companies. We sell in the order of a trillion cubic feet of gas per year.

Mr. Chairman, in recent times we have found that there has been adequate deliverability of gas available for our sales on our system, and indeed there has been some degree of surplus at certain times during the year.

However, we must never confuse the availability of immediate deliveries of gas with long-term reserves of gas available to the Nation. One of the most attractive features of the Alaskan gas is that it will, once it starts flowing, last for a long time, for many years, for 25 years, or thereabouts.

So, it becomes thus very important to the Nation in our view for this supply of gas to be made available to our systems for use in the latter part of this decade and in the next decade, and after the turn of the century.

We have seen that there are many instances in which energy supplies can be interrupted that the Nation has been counting on. Indeed, we saw that as we are seeking to build the oil pipeline years ago, and we never know when there will be other interruptions to supplies of energy.

I have a distinct belief that within the next 10 years, and perhaps shorter than that, that we will be very glad to see any indigenous energy supplies which we can have available to us.

I think that it is highly important for us to take every step we can to provide and put the facilities in place so that the energy supplies can be made available. I think that it is in this context that the Alaskan gas goes above some of the specific questions that we all trouble ourselves with, important as they are.

I do think that we simply must have this energy supply for the country. You know, times are difficult in financing, as you are certainly aware. These are very tough financing conditions, as I am sure the banks will tell us later in the afternoon.

But we do think that the waiver package which is very modest in its scope is absolutely essential for us to have a chance at private financing. I really believe that this is in a sense our last, best chance to achieve private financing for the Alaskan system.

I do think that one time or another, one way or another, the Alaskan gas will be bought, and that we should proceed now.

Thank you very much, Mr. Chairman, and members of the committee.

[The statement of Mr. Roff follows:]

WRITTEN STATEMENT OF J. HUGH ROFF, JR.

Mr. Chairman, members of the committee, my name is J. Hugh Roff, Jr. I am appearing as Chairman of the Board and Chief Executive Officer of United Gas Pipe Line Company (United Gas), which is a subsidiary of United Energy Resources, Inc., of which I am also Chairman and Chief Executive Officer. United Gas intends to purchase natural gas produced on the North Slope of Alaska and transport that gas through the Alaska Natural Gas Transportation System (ANGTS). One of the subsidiaries of United Gas, United Alaska Fuels Corporation, is a partner in the Alaskan Northwest Natural Gas Transportation Company, which proposes to construct the Alaskan segment of ANGTS. Another subsidiary, United Mid-Continent Pipe Line Company, is a partner in Northern Border Pipeline Company, which is presently constructing facilities to transport initially Canadian, and ultimately Alaskan, gas from the U. S. - Canadian border into the Mid West.

United Gas is a strong supporter of the Alaskan project. The determination to become involved in the project was based upon the belief that gas from Alaska could be a substantial factor in alleviating future natural gas shortages on the system of United Gas and throughout the United States as a whole. Projects of this magnitude, of necessity, require many years from the time of conception through completion. Because this is the largest project ever attempted by private industry, the lead times have been even longer than initially anticipated. However, although perceptions of the current gas supply situation in the U. S. may vary from those of a few years ago, it remains the belief of United Gas that Alaskan gas will be needed when this project is complete.

Even after all the governmental approvals and financing arrangements are in place, three years will be required to construct the Alaskan segment of this system. We cannot afford to wait until a national emergency is upon us before expediting completion of the project. During the early 1970's questions were raised of the necessity for a pipeline to transport the oil from the North Slope to markets in the U. S. Those doubts vanished with the shortages resulting from the Arab oil embargo in 1973. The shortfall in overall supplies would not have been significant if the oil pipeline had been constructed on schedule. However, when a consensus finally developed that the nation's economy needed oil from Alaska, it could not be made available for almost three more years. Natural gas from the same field will most assuredly also be needed. The transportation system for that project should be completed in an expeditious but orderly manner, not constructed in a crisis atmosphere at a time when severe gas shortages are causing economic dislocations.

United Gas is the principal interstate supplier of natural gas in the Gulf South region of the U. S., serving approximately 400 distribution systems, 170 direct industrial customers, and 12 power plants in the States of Texas, Louisiana, Mississippi, Alabama and Florida. Additionally, United supplies gas to five major interstate pipelines which in turn supply gas to the Midwest and East Coast. Thus, natural gas transported through the system of United Gas in consumed in virtually every state in the eastern half of the United States. United Gas expects that gas delivered from this project will be marketable in its service area. The wellhead price of natural gas produced from the North Slope and transported through ANGTS is subject to a ceiling price under Section 109 of the Natural Gas Policy Act of 1978 (NGPA). As of October 1981, the maximum lawful price under which that gas could be sold is $2.08 per million Btu's and is subject to further adjustment for inflation. United Gas presently projects that the cost of transporting this gas to its service area will be greater than United Gas anticipates its average systemwide cost of gas from all other sources, as delivered into its system, will be at that time. However, United Gas expects to purchase a volume of gas from the Prudhoe Bay reserves which will be equivalent to between 5% and 15% of its total sales volume over the next two decades. Section 208 of the NGPA assures that the acquisition and purchase price of Prudhoe Bay gas may be priced on a "rolled in" basis. The averaging effect of including a small volume of gas, relative to the total gas supply of United Gas, should not significantly increase the cost to United's customers at the time deliveries commence. In fact, since the transportation costs decreased as ANGTS is depreciated, the costs of Alaskan gas to United's customers may ultimately be less than the average cost of the remainder of the gas in United's system.

Generally, customers of United Gas, without regard to the class in which they may fall, are charged rates which reflect the actual cost to United Gas of purchasing gas during the month of delivery. United Gas's participation in the project requires regulatory assurances that all costs of purchasing and transporting Alaskan gas into its system may be flowed through to its customers, who are the ultimate beneficiaries of the project. To the extent that these costs result in an increase in the average purchased gas costs on its system, that increase will be reflected in the average price per million Btu's purchased by each of the United Gas' customers. United Gas will not be able to participate in the project unless it receives regulatory assurance from the outset that it may flow these costs through to its customers. The waiver proposal is essential to assure that these regulatory approvals, once given, may not be modified in a manner which would preclude the recovery by United Gas of costs associated with the transportation of Alaskan gas.

Failure to approve the waiver proposal will mean, at a minimum, substantial delays in completion of the project. If these delays occur, it is certain that the ultimate cost of completing the ANGTS will be significantly higher than the cost of completion by 1986. Cost increases resulting from further delays can only inhibit the marketability of Alaskan gas. Thus, to the extent the waiver proposal expedites completion of the project, the marketability of Alaskan gas has been assisted.

United has continued its participation in this project subsequent to the partial deregulation of natural gas permitted by the NGPA. United does not anticipate that such further deregulation legislation as is reasonably foreseeable would affect its participation in the project. Under the present structure of the NGPA, gas produced from the Prudhoe Bay Unit remains under regulation indefinitely. Should legislation subsequently remove those wellhead price controls, United assumes that contracts with producers will be negotiated in a manner which would recognize the relatively high transportation costs involved in delivering the gas from wellhead to market.

United Gas' financial involvement in ANGTS includes both its equity participation in the Alaskan portion and the eastern U. S. leg (Northern Border) and its obligations as a transporter of both Canadian and Alaskan gas in ANGTS. The following table summarizes the extent of United Gas' financial involvement in the total project as compared to its other business activities at June 30, 1981.

(1) Total Assets of United Gas	$1,252 million
(2) Total Capitalization of United Gas	$ 543 million
(3) Shareholders' Equity of United Gas	$ 340 million
(4) 1981 Capital Budget of United Gas	$ 220 million
(5) Anticipated Cash Investment in Project	$ 216 million
(6) Anticipated Contingent Liabilities in Project	$ 624 million
(7) 1981 Cash Investment in Project	$ 62 million
(8) (5) as a % of (1)	17.5%
(9) (5) as a % of (2)	39.7%
(10) (5) as a % of (3)	63.5%
(11) (6) as a % of (1)	50.6%
(12) (6) as a % of (2)	114.9%
(13) (6) as a % of (3)	183.5%
(14) (7) as a % of (4)	28.2%

While anticipated cash investments and contingent liabilities will be subject to upward or downward revisions as final financing requirements and the terms of financing are established, the preceding table clearly indicates that United Gas' involvement in the project is substantial in relation to its size and will impact materially upon its ability to undertake other capital projects that are considered necessary if United Gas is to continue bringing improved service to its customers.

United Gas has entered into a letter of agreement to conduct negotiations towards an execution of a Gas Purchase Contract with ARCO Oil and Gas Company. This agreement contemplates the purchase by United Gas of 15% of ARCO's working interest in the Prudhoe Bay Reservoir. The agreement contemplates a negotiated contract price, not less than that provided in Section 109 of the NGPA, and states that customary deregulation and price escalation provisions permitted by any future statute or regulation will be included.

United Gas presently expects to purchase approximately 5% of the Prudhoe Bay natural gas reserves currently offered for sale and to participate in approximately the same percentage equity share. United Gas' percentage of the total equity and debt-related financing commitments would be the same as its percentage of the total equity subscribed for by all such purchasers, and United Gas would not provide credit support to any other project sponsor.

With or without the waiver proposal, the potential liabilities of United Gas' customers will be a function of the transportation capacity contracted for by United Gas.

If United Gas has available to it approximately 5% of the Alaskan gas, it will contract for the same percentage of total transportation capacity, and its payment obligations will represent the same percentage of the total cost of service. Once billing commences, United Gas will be obligated to pay this percentage of the cost-of-service charges regardless of the volumes actually received by it, with or without the waiver proposal.

As an interstate natural gas pipeline company, United Gas is regulated at the Federal level. At this time, the Federal Energy Regulatory Commission is the primary agency exercising economic regulatory control over United Gas. It has been our experience that the flexibility of FERC regulation fluctuates to relect the general political atomosphere and the views of the current membership of the Commission. Since this a long-term project, United Gas seeks assurances that future Commissions, operating under unforeseeable circumstances, will abide by commitments of prior Commissions made at the time substantial financial exposures are incurred. Thus, United Gas seeks assurance that future regulatory authorities would continue the initial policy of permitting United Gas to flow the costs which it incurs through to its customers.

United Gas views the Alaska project as one which will make available a very substantial quantity of gas to consumers throughout the United States. Proven reserves of 26 trillion cubic feet will undoubtedly be enlarged by new reserves added by drilling when the system becomes operational. The availability of these new supplies will significantly alleviate the possibility of natural gas shortages in the future. The approximately 5% of the total Prudhoe Bay supply which United Gas is acquiring is substantial when compared to most other gas supply options available to United Gas. While some volume of conventional gas might be acquired at lower cost, there are not adequate amounts of such supplies available on a long-term basis for United Gas to meet the needs of its customers into the next century. United Gas has followed an aggressive gas acquisition program for years in the lower 48 states, but recognizes that supplies from Alaska, synthetic gas and imports will be required in order to meet the reasonable demands of gas consumers in this country over the next decades. In comparison with these other "non-conventional" sources of supply, United Gas believes the Alaskan project will provide significant long-term supplies at a lower cost and with less risk of consumer liability or danger to the security of the supply than virtually any other source. Any project to import gas involves some degree of risk, varying with the country of production, since the foreign government can control both the price and continued availability of supply. Although the ANGTS passes through Canada, the transit of that gas is protected by treaty so that any security risks are minimal.

Accordingly, United Gas stongly believes ANGTS is in the national interest and urges Congress to approve the waiver package.

STATEMENT OF HARRY L. LEPAPE

Mr. **Lepape**. Mr. Chairman, my name is Harry L. Lepape. I am president and chief executive officer of Pacific Interstate Transmission Co. and Pacific Interstate Transmission Co. (Arctic) and a vice president of our parent company, Pacific Lighting Corp.

I am also a director of Foothills Pipe Lines, Ltd., which is not affiliated with Pacific Lighting, but is one of the four Canadian companies responsible for a portion of the Alaska Highway Pipeline project in Canada.

Pacific Interstate has executed a letter of intent with the Atlantic Richfield Co. for the purchase of 33 percent of its share of the Prudhoe Bay or about 10 percent of the total Prudhoe Bay production.

Southern California is heavily dependent on natural gas. Approximately 50 percent of the area's nontransportation energy requirements are met with natural gas. Over 75 percent of southern Californians use natural gas for cooking and over 90 percent use natural gas for water and space heating.

Southern California Gas Co., the gas distribution subsidiary of Pacific Lighting Corp., serves an area encompassing central and southern California with a population of 12.4 million people. It is the largest gas distribution company in the Nation.

Unlike some areas of this Nation, southern California does not have a fuel oil distribution network for home use, and coal is not a viable alterantive to natural gas, primarily for environmental reasons.

The vast majority of small commercial and industrial gas users in southern California do not have the necessary facilities to use any fuels other than natural gas. Large customers, including the electric utilities, rely heavily on gas and must use gas, if it is available, during serious smog episodes.

Although Southern California Gas Co. currently has enough gas to meet residential and commercial customer requirements, as well as a significant portion of electric utility generating requirements during a hot or average temperature year, additional gas supplies will be needed if we are to maintain current delivery volumes.

Gas supply from the lower 48 States is expected to decline sharply between now and the earliest date gas could be received from this project.

Two developments have been important in helping us solve our critical needs in the interim period before the anticipated date of the delivery of Alaska gas to the lower 48 States.

First, there has been a significant improvement in the short-term availability of natural gas since the enactment of the National Gas Policy Act of 1978. Unfortunately, this improvement will be short term because gas continues to be consumed in the lower 48 States faster than new reserves are being added. Since 1970, production has exceeded discoveries in the lower 48 States by over 100 trillion cubic feet.

Second, commencing October 1, 1981, we started importing through the prebuilt section of the western leg of the Alaska Highway project up to 240 million cubic feet a day of gas from the Province of Alberta. However, this supply so far has only been authorized until 1988.

The long-term supplies of gas from Alaska will be essential in meeting our long-term needs. We are concerned any delays in starting construction of this project will mean increased costs of a magnitude as to remove any chance that it could be privately financed.

If the financing requirements reach a point beyond the capacity of the private sector, the consumers of the Nation can only expect to receive this additional resource after additional delays, which would increase costs and in turn require a significant level of direct Government financial participation.

I am convinced that over the life of the project the gas will be marketable at a price competitive with new supplies from whatever source, domestic or foreign. It is a secure domestic supply and justifies a significant degree of customer support.

I wish to take this opportunity to express our continuing strong support of the Alaska highway pipeline project. We are convinced the project is in the best interest of the consumers in California and throughout the nation.

Because of this, we believe the Government should continue to vigorously endorse and support the project. This includes prompt approval of the President's waiver package.

It is our firm conviction that this Nation will need the Alaska gas reserves no later than the earliest timeframe that can be made available. It will reduce our dependence on OPEC oil and will help meet this country's vital energy needs.

The Alaska highway pipeline project is a project which the Nation cannot afford not to build. I believe it will prove to be a good deal for our customers.

Mr. Chairman, thank you for inviting me to appear, and I will try to answer any questions at the appropriate time.

[Mr. Lepape's prepared statement follows:]

STATEMENT OF HARRY L. LEPAPE
PRESIDENT AND CHIEF EXECUTIVE OFFICER,
PACIFIC INTERSTATE TRANSMISSION COMPANY
PACIFIC INTERSTATE TRANSMISSION COMPANY (ARCTIC)

My name is Harry L. Lepape. My business address is 720 West Eighth Street, Los Angeles, California 90017. I am President and Chief Executive Officer of Pacific Interstate Transmission Company and of Pacific Interstate Transmission Company (Arctic), and a Vice President of our parent company, Pacific Lighting Corporation. I am also a Director of Foothills Pipe Lines (South B.C.) Ltd., which is not affiliated with Pacific Lighting but is one of the four Canadian companies responsible for a portion of the Alaska Highway Pipeline Project in Canada.

Pacific Lighting Corporation is a Los Angeles based holding company which is engaged in a number of business activities, most of which are energy related.

Pacific Interstate Transmission Company and Pacific Interstate Transmission Company (Arctic) are subsidiaries of Pacific Lighting Corporation. Pacific Interstate Transmission Company is a natural gas company which purchases, transports and sells natural gas to its affiliates in southern California. Pacific Interstate Transmission Company (Arctic) is a partner in the Alaskan Northwest Natural Gas Transportation Company, the partnership formed to build and operate the Alaskan segment of the Alaska Highway Pipeline Project. Pacific Interstate has executed a letter of intent with the Atlantic Richfield Company ("Arco") for the purchase of 33% of its share of the Prudhoe Bay or about 10% of the total Prudhoe Bay production.

It is a pleasure to be here today and it is a privilege to have the opportunity to make a statement in support of the

Alaska Highway Pipeline Project. Alaska has this nation's largest untapped natural gas resource. In addition to the 26 trillion cubic feet of proven gas reserves in Prudhoe Bay on the North Slope, there are other significant hydrocarbon formations believed to exist in the northern Alaska area. On behalf of our companies, I personally have been involved for over a decade in the efforts to bring a portion of this vast gas resource to consumers in southern California.

Pacific Interstate is a charter member of the partnership selected by the governments of the United States and Canada to build a pipeline system south from Prudhoe Bay along the Alaska Highway through Canada to the lower 48 states. We are a member of this partnership because we believe in the importance of linking this significant domestic energy source with the lower 48 states and, more specifically, because it will provide, through the Western Leg of the project, a direct transportation system for the delivery of Alaska gas to southern California.

Southern California is heavily dependent on natural gas. Approximately 50% of the area's non-transportation energy requirements are met with natural gas. Over 75% of southern Californians use natural gas for cooking and over 90% use natural gas for water and space heating.

Southern California Gas Company, the gas distribution subsidiary of Pacific Lighting Corporation, serves an area encompassing central and southern California with a population of 12.4 million people. We sell 5% of all the natural gas distributed in the entire United States. In addition, Southern California Gas Company sells gas at wholesale to San Diego Gas & Electric Company and the Gas Department of the City of Long Beach, which together have approximately 600,000 meters in southern California.

Metropolitan Los Angeles, defined by a 60-mile radius from downtown Los Angeles, has the second largest concentration of population, employment, business, industry and finance in the United States, exceeded only by the Greater New York area. The gross regional product of Metropolitan Los Angeles is exceeded by the gross national product of only 13 nations in the world. The Los Angeles area accounts for nearly half the economy of California, and the area is experiencing a population growth rate nearly twice that of the United States as a whole. Natural gas is vital to the economy of the area.

Unlike some areas of this nation, southern California does not have a fuel oil distribution network for home use, and coal is not a viable alternative to natural gas, primarily for environmental reasons. The vast majority of small commercial and industrial gas users in southern California lack facilities for the use of fuels other than natural gas. Large customers including the electric utilities rely heavily on gas and must use gas, if it is available, during serious smog episodes.

Although Southern California Gas Company currently has enough gas to meet residential and commercial customer requirements, as well as a significant portion of electric utility generating requirements, additional gas supplies will be needed if we are to maintain current delivery volumes. Gas supply from the lower 48 states is expected to decline sharply between now and the earliest date gas could be received from this project.

Two developments have been important in helping us solve our critical needs in the interim period before the anticipated date of the delivery of Alaska gas to the lower 48 states. First, there has been a significant improvement in the short-term availability of natural gas since the enactment of the Natural Gas Policy Act of 1978. This improvement will be short term because gas continues to be being used in the lower 48 states faster than new reserves are being added. Since 1970, production has exceeded discoveries in the lower 48 states by over 100 trillion cubic feet. Second, commencing October 1, 1981, we started importing through the prebuilt Western Leg of the Alaska Highway Project up to 240 million cubic feet a day of gas from the Province of Alberta in Canada. However, it is the long term delivery of gas from Alaska that will be critical to meeting our future gas needs.

We were pleased to learn that the President has sent you the waiver package and of your decision to start early hearings on this matter. It reflects a recognition of the urgency and the tremendous national importance of this project. Lenders to the project will require the waiver package and satisfactory assurances that the sponsor companies are capable of fulfilling the financial obligations they undertake for this project. The project's commercial bank advisors have indicated that some creditworthy party or parties will have to provide unconditional completion undertakings, or, in the event of noncompletion, unconditional promises to repay the debt.

We believe that the tariff, as approved by FERC, together with those related portions of the waiver package (i.e., early billing commencment and regulatory certainty) will provide the necessary credit support for the debt once the facilities for a particular segment are completed and/or gas begins to flow. Until such events occur, the full risk of completion rests on the sponsors who must assume the risk for the debt as well as their equity. We are confident that the risks of noncompletion are very remote and that the project can be built within budget. However, the sheer magnitude of dollars require that this remote contingency be considered seriously in determining the maximum financial commitment Pacific Lighting can undertake.

If the waiver package is not approved and the sponsors are therefore unable to proceed promptly with the effort to develop a total financing package in the private sector, the team of experienced people in both the sponsors' and contractors' organizations who have been assembled over the many years would undoubtedly be disbanded. To reassemble such talent would be difficult and time-consuming.

We are also concerned that any significant delay in commencing construction of this project will mean increased costs of a magnitude which would eliminate any chance it could ever be a privately financed project. If the financing requirements do increase to a point beyond the capacity of the private sector, the gas consumers of the nation could only expect to receive this vast domestic resource at a greatly increased cost and with a significant level of direct government financial participation.

I am convinced that over the life of the project, the gas will be marketable at a price competitive with new supplies from whatever source, domestic or foreign. It is a secure domestic supply and justifies a significant degree of customer support. This is no more than will be required for any major new energy project where the capital costs are as significant when compared to the financial strength of potential sponsors.

The pipeline sponsors' equity is at a greater risk on this project than for some other major new gas supply projects because of the IROR provisions which will penalize the equity return if costs exceed the approved final cost estimate. Sponsors' balance sheets can be stretched only so far to also support the debt during construction for this highly leveraged project. For this project to proceed, it must continue to have the full support of the Congress, the Administration and the federal and state regulatory agencies.

I wish to take this opportunity to express our continuing support of the Alaska Highway Pipeline Project. We are convinced the project is in the best interests of the consumers in California and throughout the nation. Because of this we believe the government should continue to vigorously endorse and support the project.

It is our firm conviction that this nation will need the Alaska gas reserves within the time frame that they can be obtained. It will reduce our dependence on OPEC oil and will help meet this country's vital energy requirements. The Alaska Highway Pipeline Project is a project which that nation cannot afford not to build.

STATEMENT OF GEORGE H. EWING

Mr. EWING. Thank you, Mr. Chairman.

I am George H. Ewing. I represent the Texas Eastern Transmission Co. Texas Eastern Transmission Corp. is the parent of Texas Eastern Pipeline Co. and Transwestern Pipeline Co. and I am the president of these companies.

These companies have commitments to purchase Prudhoe Bay gas supplies and propose to ship that gas over the Alaskan system to help meet their respective market requirements in the lower 48 States.

Both Texas Eastern and Transwestern are major interstate natural gas pipeline companies. They serve major markets on the east and west coast, and the Midwestern areas of the lower 48 States.

Texas Eastern's annual requirements total slightly in excess of 1 trillion cubic feet annually, and Transwestern's annual requirements total approximately 380 billion cubic feet.

Texas Eastern has been actively engaged in furthering an Alaskan pipeline system to make Prudhoe Bay gas supplies available to the lower 48 States since 1969. Throughout this period it has found that because of the sheer magnitude of the cost of the project, it cannot be financed like other projects.

We believe approval of the waiver package is a necessity if there is to be any chance of privately financing the Alaskan pipeline system. Texas Eastern and Transwestern urgently need the Alaskan natural gas to help meet their requirements in the late 1980's.

The cost of the Prudhoe Bay gas supplies will be rolled into Texas Eastern's and Transwestern's systems gas supplies, and we presently believe such supplies will be marketable over the life of the project.

I would like to emphasize that in my judgment it is a very important benefit of the pipeline that will result in security of energy supplies in terms of national defense needs of the United States and North America.

I respectfully urge this committee and Congress to approve the President's waiver package.

Thank you, Mr. Chairman, for inviting us, and we appreciate this opportunity to make a presentation to you and your committee.

[Testimony resumes on p. 411.]

[The statement of Mr. Ewing follows:]

Prepared Statement
of
George H. Ewing
on behalf of
Tetco Four, Inc.
Texas Eastern Transmission Corporation
Transwestern Pipeline Company

We appreciate this opportunity to appear before this honorable committee on behalf of Tetco Four, Inc., and its parents, Texas Eastern Transmission Corporation (Texas Eastern) and Transwestern Pipeline Company (Transwestern) in support of the waiver package submitted by the President pursuant to the Alaska Natural Gas Transportation Act.

Tetco Four, Inc., is one of the pipeline sponsors of the Alaska Natural Gas Transportation System and is a subsidiary of Texas Eastern and Transwestern. Both Texas Eastern and Transwestern have commitments to purchase Prudhoe Bay gas supplies and propose to ship that gas over the Alaskan system to help meet their respective market requirements in the lower forty-eight states.

My name is George H. Ewing. My business address is P. O. Box 2521, Houston, Texas 77001. I am Senior Vice President of Texas Eastern Transmission Corporation and President of its natural gas pipeline division, Texas Eastern Gas Pipeline Company, and President of Transwestern Pipeline Company, a subsidiary, and Tetco Four, Inc. I am responsible for making decisions respecting Texas Eastern's and Transwestern's gas acquisition policies and the construction of projects to make additional gas supplies available to their pipeline systems and markets.

Both Texas Eastern and Transwestern are major interstate natural gas pipeline companies. They have been in operation for many years and are regulated by the Federal Energy Regulatory Commission under the Natural Gas Act. They serve major market areas on the East and West Coasts and in middle and midwestern areas of the lower forty-eight states.

Texas Eastern's pipeline system consists of approximately 9000 miles of natural gas pipeline extending from the Texas-Mexico Border and offshore Louisiana to the New York City area. It serves five interstate pipeline companies and ninety-two distributor companies and municipalities. While it supplies various markets in the states it traverses, its principal market area is in Pennsylvania, New Jersey, and Ohio. It is the sole supplier of pipeline natural gas to Algonquin Gas Transmission Company which serves various distributor companies in the New England States. Texas Eastern's annual requirements total slightly in excess of 1 trillion cubic feet and its daily requirements average approximately 2.9 billion cubic feet. The great majority of its sales are for high priority uses.

Transwestern's pipeline system is separate from Texas Eastern's system and consists of approximately 3700 miles of natural gas pipeline extending from West Texas and the Texas-Oklahoma Panhandle through New Mexico and Arizona to the California-Arizona Border. Approximately three-fourths of its sales of natural gas are made to Pacific Lighting Service Company for distribution in the Los Angeles and San Diego areas and approximately one-fourth of its sales are made to Cities Service Gas Company for distribution in Midwestern market areas. Small quantities are also delivered to various other parties for local consumption along its route. Transwestern's annual requirements total approximately 383 billion cubic feet and its daily requirements average a little in excess of 1 billion cubic feet. The great majority of its sales are also for high priority uses.

In order to meet these substantial annual and daily requirements, it is essential that both Texas Eastern and Transwestern attach substantial new supplies of natural gas on a continuing basis to replenish existing gas supplies as they are depleted. Both companies have vigorous gas acquisitions programs seeking new sources of gas supplies. The Prudhoe Bay gas supplies represent a significant and vital part of this acquisition effort. The proved gas reserves of this field are estimated to be approximately 26 trillion cubic feet, and it is of great importance to the security of the United States and the welfare of the gas consumers that they be made available to markets in the lower forty-eight states without undue delay. However, without Congressional approval of the waiver package, private financing of the Alaska pipeline system is not even a remote possibility.

Texas Eastern has been actively engaged in furthering an Alaskan pipeline system to make Prudhoe Bay gas supplies available to the lower forty-eight states since 1969. It has spent considerable time, effort, and money in trying to make the pipeline a reality. Throughout this period it has found that because of the sheer magnitude of the cost of the project, it cannot be financed like other projects. For the same reason, it cannot be likened to any other investment opportunities, corporate or individual. Thus approval of the waiver package is a necessity if there is to be any chance of privately financing the Alaska pipeline system. The alternative of non-approval will, at best, result in very substantial delays in making the project a reality, loss of benefits of the project during the delay, and very substantial increases in the cost of the pipeline, and thus increased costs to the nation's consumers, due to inflation.

Texas Eastern and Transwestern each have commitments to purchase approximately 70,000 Mcf of Prudhoe Bay natural gas a day, for a total of approximately 140,000 Mcf of natural gas a day. Each of them urgently need this additional natural gas to help meet their commitments to their customers at current levels. I have attached two graphs to my statement which reflect each company's requirements based on present commitments to its customers and its present and projected gas supplies for the years 1981 through 1989. The projections assume that Texas Eastern and Transwestern will be able to attach their fair share of future gas supplies that may be available to each of their systems. Even so, you will note that beginning in 1987, when it is projected that Prudhoe Bay gas supplies will first be available to the lower forty-eight states, Texas Eastern will need an estimated 300,000 Mcf of natural gas a day in addition to the 70,000 Mcfd of Prudhoe Bay gas supplies just to meet its commitments to its customers at current levels. You will also note that this deficiency in gas supplies will grow larger in future years. Similarly, you will note that in 1987 Transwestern will need an estimated 100,000 Mcf of natural gas a day in addition to the 70,000 Mcfd of Prudhoe Bay gas supplies to meet its current commitments to its customers. And, like Texas Eastern, this deficiency in gas supplies will grow larger in the future. Thus, Texas Eastern and Transwestern have a very real need for Prudhoe Bay gas supplies to help meet their respective commitments to their customers.

The cost of the Prudhoe Bay gas supplies will be rolled into Texas Eastern's and Transwestern's system gas supplies and we presently believe such supplies will be marketable over the life of the project. However, our interest in the Alaska pipeline system is not limited to transporting Prudhoe Bay gas supplies -- as important as that is to the nation's welfare and public interest. We firmly believe that once the pipeline becomes a reality, it will provide access to the lower forty-eight states of the substantial additional natural gas reserves in Alaska -- reserves which have been estimated by the United States Department of Interior to be potentially in excess of 100 trillion cubic feet. The proposed Alaska pipeline system has been sized so that it will be able to transport substantial quantities of those additional supplies of Alaskan gas to the lower forty-eight states by the addition of compression, which will result in lower unit transportation costs for all Alaskan gas as these supplies are attached to the system.

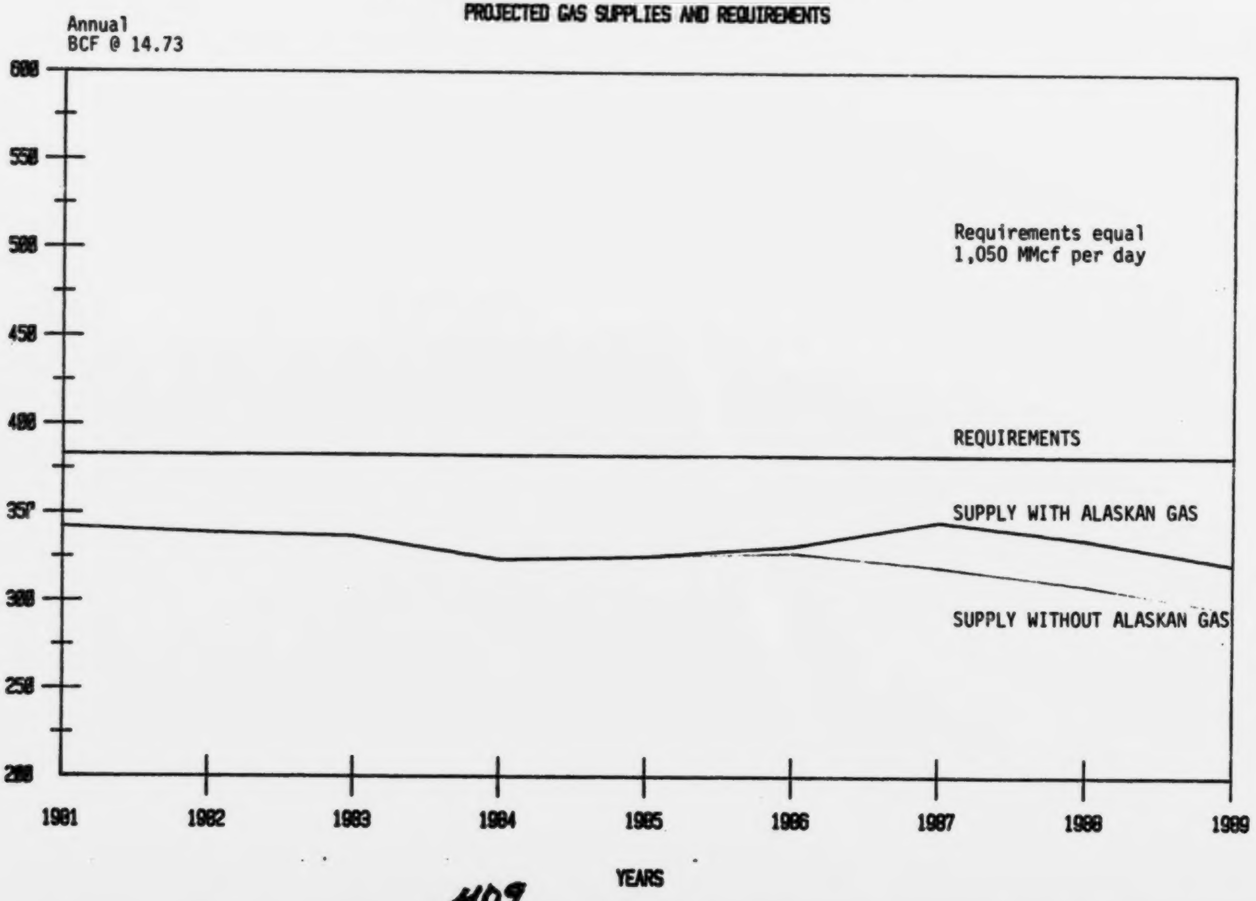
The provisions of the waiver package, while they do not ensure private financing of the project, are essential if we are to hope to secure private financing of the Alaska pipeline system. The pipeline sponsors, as a whole, because of the magnitude of the cost of the project, simply do not have sufficient financial capability to finance it. Therefore, it is essential that the producers be permitted to participate in the ownership and financing of the Alaska pipeline segment. The regulatory waivers with respect to billing by the pipeline and tracking by the shippers are necessary in order to assure the lenders of the enormous sums required that they will receive payments of principal and interest from the project on a timely basis. And the regulatory waivers to expedite issuance of final project approvals, are necessary to avoid delays which could substantially increase the cost of the project and make private financing even more difficult. In addition, they will avoid needlessly imposing substantial additional pipeline costs on the nation's consumers.

Others will testify in detail with respect to the great public interest benefits that will result from building the Alaska pipeline system, such as reducing natural gas supply shortages, stimulating additional natural gas exploration and development of substantial additional Alaskan gas reserves, and substantially improving the United States balance of payments. Accordingly, I will not dwell on them. However, I would like to emphasize that in my judgment a very important benefit of the pipeline will be the resulting security of energy supplies in terms of the national defense needs of the United States and North America. Our nation simply cannot afford to further delay attaching the significant Alaskan natural gas reserves to the lower forty-eight states.

I respectfully urge this honorable committee and the Congress to approve the President's waiver package.

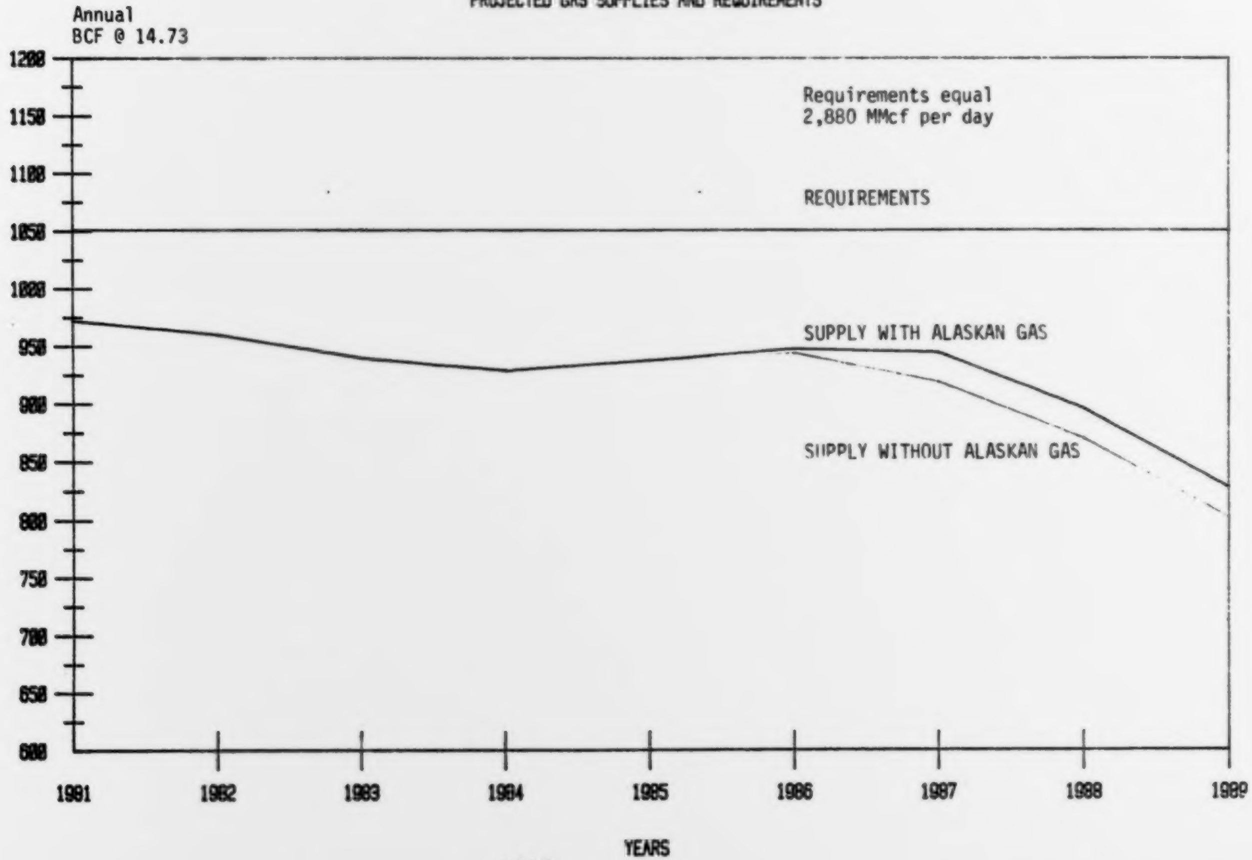
TRANSWESTERN PIPELINE COMPANY

PROJECTED GAS SUPPLIES AND REQUIREMENTS



TEXAS EASTERN TRANSMISSION CORPORATION

PROJECTED GAS SUPPLIES AND REQUIREMENTS



STATEMENT OF JOHN H. CROOM

Mr. Croom. Mr. Chairman and members of the subcommittee, my name is John H. Croom. I am executive vice president of the Columbia Gas System, Inc., and President of the Columbia Alaskan Gas Transmission Co., a wholly owned subsidiary of the Columbia Gas System, Inc. and one of the sponsoring companies of the Alaskan gas pipeline project. I am here today to urge that you approve the waiver of law submitted by the President on October 15, 1981.

The Columbia Gas System is one of the largest integrated natural gas companies in the United States and last year delivered 1.2 trillion cubic feet or approximately 6 percent of the gas consumed in this country.

Columbia supplies directly through its retail operations, or indirectly through sales to other utilities, the gas requirements of over 4 million customers in an area having a population of approximately 18 million people.

Columbia's customers are located in the States of Ohio, Pennsylvania, West Virginia, Maryland, Kentucky, Virginia, New York, New Jersey, and the District of Columbia.

Columbia supports the Alaska Natural Gas Transmission System and the proposed waiver because:

The project is essential to the Nation's as well as to our service area's long-term gas supply;

The Prudhoe Bay gas represents 13 percent of the Nation's proven gas reserves. The building of the Alaskan pipeline can be expected to stimulate further development on the North Slope and increase these reserves significantly.

While the delivered price will be relatively high in the early years, it will substantially decline in later years as the large rate base becomes depreciated. On the average, it will be below the price of imported oil.

If the waiver is approved, the Federal Energy Regulatory Commission will still have to implement it and the banks will still have to agree to finance the project. But without congressional approval, the transportation system cannot be privately financed.

In the late 1960's Columbia recognized the need to look beyond its traditional sources of gas to assure an adequate supply for its customers. Included in studies of these nonhistoric sources were liquefied natural gas from overseas, deep domestic gas, synthetic natural gas from heavier hydrocarbons, gas from tight sands, and Alaskan gas.

Following the discovery of the Prudhoe Bay field in 1968, Columbia participated in studies which lead to the determination that it was technically and economically feasible to bring these reserves to the lower 48 States.

Over the period 1971 through 1975, Columbia loaned $175 million to Sohio for the rights to purchase a portion of Sohio's Prudhoe Bay gas reserves. Under the agreement with Sohio, the loan was repaid during the 1½-year period after the crude oil pipeline was placed in operation.

Columbia expects to obtain over 100 billion cubic feet annually, which in 1987 will represent over 7 percent of its gas supply.

The importance of the Alaskan gas to Columbia's customers cannot be overstated. The latest 10-year demand-supply projections, detailed in the attachment, indicate that Columbia must make a strenuous effort to replace declining volumes of committed gas supplies.

Even with the inclusion of natural gas from Alaska, appreciable volumes must be sought and secured from reserves yet to be found and developed in such areas as the Rocky Mountains, Appalachian Basin, and the Gulf of Mexico.

Columbia strongly believes that the relatively certain assurance of a secure, consistent and domestic source of supply which this project promises for all of Columbia's customers outweighs any conjectural load loss due to possible temporary price increases.

The magnitude of any price increase and resultant load loss is expected to be minimal on Columbia's system. Assuming continuation of the Natural Gas Policy Act, the expected delivered cost of Alaskan gas averaged with other committed lower priced volumes will result in a net gas cost to Columbia's residential, commercial, and industrial customers below that of distillate oil, the principal alternate fuel for most of Columbia's high priority industrial loads.

We expect the industrial customers will continue to use lower priced natural gas for some time, thus providing price and supply stability for all of Columbia's customers.

Furthermore, the delivered cost of Alaskan gas declines over the life of the project. In real dollars, its cost will fall significantly below that of distillate oil after the first few years of the operation of the pipeline.

In addition to supplying long-term natural gas supplies at competitive prices, the Alaskan pipeline project will contribute to the economic and security interests of all of the Nation's consumers.

Columbia is prepared to commit over $1 billion to this project Your approval of the President's proposed waiver of law is an essential step toward this objective.

Thank you very much.

[An attachment to Mr. Croom's prepared statement follows:]

Attachment

COLUMBIA GAS SYSTEM
DEMAND-SUPPLY PROJECTIONS
(Billions of Cubic Feet)

Year*	Demand	Supply**	Alaskan Gas	Supply Deficiency
1982	1,327	1,493		(166)
1983	1,364	1,509		(145)
1984	1,378	1,465		(87)
1985	1,409	1,313		96
1986	1,420	1,212		208
1987	1,432	1,127	104	201
1988	1,449	1,053	104	292
1989	1,468	999	104	365
1990	1,492	958	104	430

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* Demand-supply years are from November 1 of the preceding year to October 31 of the year shown.

** Anticipated supply from identifiable sources.

STATEMENT OF ROBERT P. RAASCH

Mr. RAASCH. Mr. Chairman and members of the committee, my name is Robert Raasch. I am president of Northern Arctic Gas Co., the InterNorth subsidiary, which is a partner in the Alaskan Northwest Natural Gas Transportation Co.

On behalf of InterNorth I would like to thank you for the opportunity to appear here. Having received the questions somewhat late, I did not incorporate them in my testimony, but I have handed them out separately.

I also have some prepared remarks.

If we just change the names and locations, my statement would be much like the statement which preceded me, so I am going to be very brief.

We, too, went through the rather dark days of the last decade, days of allocations, days when our acquisitions fell short of our production, times of curtailment, times of moratorium.

We, too, searched through the old fields to the new. We went to the gulf coast, to the Rocky Mountains, to Montana and to Canada. We examined synthetic natural gas. We, too, stressed insulation, conservation, and efficient utilization of energy.

After we did all that, we came to the inescapable conclusion that there was a widening gap between the demand for natural gas and the supply available from the lower 48 States.

Now, most energy is expensive. In addition, some are insecure. Against that backdrop we turned with renewed vigor to Alaska with the support of our customer utilities.

Just a word about our customers. They are 74 utility customers operating in 7 States in about 1,100 communities. They serve about 1.5 million homes and businesses in those States.

For example, in the State of Minnesota, we provide over 90 percent of the natural gas in that State. Our charter, our challenge, our obligation to secure supplies for those customers is something we treat gravely. We treat equally gravely the possible loss of such supplies. That is why I am here today.

This supply, as other evidence you have seen or will see indicates, promises that Alaska is a most attractive supply. Projecting the price of a single energy is very difficult. Projecting simultaneously the price of several energies verges on the foolhardy.

Our conclusion is that Alaskan gas is better than most available alternatives, especially imported oil. We respectfully ask your approval of this waiver package so that we may continue this important effort.

[Testimony resumes on p. 426.]

[Mr. Raasch's prepared statement and attachment follow:]

STATEMENT OF ROBERT P. RAASCH

PRESIDENT, NORTHERN APCTIC GAS COMPANY
A Wholly Owned Subsidiary of INTERNORTH, INC.

Before

The Fossil and Synthetic Fuels Subcommittee
of the House Energy and Commerce Committee

and

The Subcommittee on Energy and the Environment
of the House Interior and Insular Affairs Committee

October 22, 1981

Messrs Chairmen and Members of the Committees, I am Robert P. Raasch, President of Northern Arctic Gas Company, the subsidiary of InterNorth, Inc., which is a partner in the Alaskan Northwest Natural Gas Transportation Company. I appreciate the opportunity to appear before you today to discuss the significance of the Waiver Package which is before you and the importance of the Alaskan Natural Gas Transportation System to our corporation and the customers we serve.

Let me briefly describe the significance of this Project to us and our customers.

InterNorth's existing natural gas purchase contracts make it one of the larger, if not the largest, holder of Prudhoe Bay gas reserves. It is thus positioned to be one of the larger shippers of Alaskan gas through the ANGTS. Our current gas dedications in Alaska equate to about 400 MMCF/D. This would represent approximately 20% of our estimated 1987 natural gas sales. In terms of natural gas reserves, our 4-5 TCF share of Prudhoe Bay gas would represent a 60% increase in our 1980 year-end reserves. This is more gas than we have been able to acquire in the last nine years. In other words, if we are able to add our Alaskan gas to our presently dedicated reserves, it would increase our reserve life index from 9.1 years to 15 years.

Why is this important to us? Well, for over ten years now we have been actively working to bring the vast natural gas reserves of Alaska to the lower 48 states. In the meantime, we have made extensive efforts to geographically diversify our supply sources. In 1969 we stepped outside our traditional Kansas, Oklahoma, Texas and New Mexico supply areas to acquire gas in Montana. In 1975 we purchased our first off-shore gas from the Gulf Coast area. In 1979 we acquired our first Rocky Mountain gas. Since then we have completed arrangements to purchase Canadian gas.

In spite of all these efforts, we still are not replacing our reserves as fast as we are using them. We concur with much industry analysis indicating that lower 48 proven natural gas reserves will continue to decline gradually. We believe it would be unwise for our company or our country to rely totally on lower 48 natural gas supplies to meet our long term market needs.

We also find it inconceivable that our nation should continue to rely on insecure foreign energy supplies when we have such tremendous untapped potential in our own state of Alaska. Further, once installed, the pipeline itself will be a springboard for expanded exploration, development, and production of even more natural gas reserves, taking advantage of the very attractive economics of expanding the capacity of the pipeline.

Our primary market area includes states which, for the most part, have few indigenous sources of energy. Through our corporation's Pipeline Division, Northern Natural Gas Company, we serve approximately 74 natural gas distribution companies and we deliver to approximately 1,100 communities in the midwest and upper midwest. These states include Iowa, Kansas, Michigan, Minnesota, Nebraska, South Dakota, and Wisconsin.

Our distributor companies provide service to over one and one-half million homes and businesses in this area. Several of these states receive more than half of their natural gas through our company. One state, Minnesota, obtains over 90% of its supplies from our company.

We also provide service to natural gas distribution companies who will use our share of Alaskan gas to provide service in the states of Illinois, Texas, and a few rural customers in the state of Montana.

Since many of these states have no oil and gas production of their own, the consumers in these states must rely on our company to ensure long-term supplies of natural gas to meet their heating and other energy needs. We believe we are carrying out that obligation by working to complete the Alaskan Natural Gas Transportation System in the best tradition of a supplier concerned about continuity of service. As far as price is concerned, the fact that transportation costs, a significant part of the delivered cost of Alaskan gas, will decline as the investment is depreciated, promises long term price attractiveness.

As over 25 million barrels of oil were consumed in 1980 in our market area by prospective natural gas users, we surely have an opportunity to do our part in reducing our country's reliance on imported oil.

Having already made a substantial financial, manpower, and time commitment to this Project, we are willing and anxious to undertake the challenging negotiations which lie ahead in order to attempt to obtain private financing for this Project. Our work to date has shown us that the Waivers of Law and Regulation which are before you are the minimum waivers which are required in order to proceed with our financing discussions.

We urge you to approve the proposed waivers which remove roadblocks to further progress.

Addendum To Statement
of Robert P. Raasch

In Reference to Questions Posed by
Chairmen Sharp and Udall
by Letter dated October 19, 1981

Q. What are your reasons for being involved in the Alaskan Project?

A. We really have two reasons for being involved in the Project. First, the Alaskan Project is a means for us to bring Alaskan gas to our customers, thereby providing long term supply assurance needed in our market territory. Second, we believe that the financial commitment and business expertise we bring to the Project should allow us to earn an attractive return on our investment.

Q. What are your expectations as to the marketability and price of the delivered Alaskan gas in your service area?

A. We approach marketability by looking at the various supply alternatives available to us over the long term. These alternatives include conventional lower-48 supplies, unconventional natural gas supplies, synthetic gas, and imports, as well as Alaskan gas.

Alaskan gas is one of the more attractive alternatives when analyzed from a long term perspective. When Alaskan gas first begins to flow in the mid-80's, this project will be just beginning a life of approximately 25 years. That is true, even if no additional gas is found on the North Slope beyond Prudhoe Bay.

Over the life of this project as presently envisioned the real cost of delivered gas (adjusted for inflation) is going to fall. We do not visualize stable real prices for any other kind of supply project we could undertake, much less declining prices.

Over the first 20 years of the project, we expect the delivered cost of Alaskan gas to average about $5/MCF in 1980 dollars - a very attractive price. Additional gas discoveries could make that price even more attractive by reducing unit transportation costs.

We expect potential marketing challenges in the project's early years. We are examining ways, such as deferring depreciation, to overcome the relatively high initial delivered cost. Nevertheless, over the life of this project, Alaskan gas represents one of the best future energy bargains available to this country.

Q. What will the effective cost of the Project be to the various classes of your consumers?

A. We discussed the costs of delivering Alaskan gas to our 74 distribution customers utilities in the preceding answer. Our distribution customers differ widely in the way they classify service to the consumers they serve. They also operate under a wide variety of regulatory jurisdictions. We do not, therefore, know exactly how the delivered cost of Alaskan gas might be passed on to various consumer classes.

Q. What is the effect of the waiver proposal in assuring marketability of the Project's gas?

A. As we see it, the waiver proposal before you has little impact on marketability. We view the waiver package primarily as a prerequisite to further progress in obtaining private financing.

Q. What effect will partial or complete deregulation and particularly deregulation of Prudhoe Bay gas (in 1985 or earlier) have on your participation in the Project?

A. The pricing of Prudhoe Bay gas is an important consideration in the marketability of the gas, as delivered, which itself is a key determinant in our level of participation. As we currently view the project, the gas appears very marketable in the long term.

Decontrol of Alaskan gas per se does not have to adversely impact the marketability of the gas; in fact, some have drawn a scenario which shows improved marketability. At this point, the certainty afforded by the NGPA pricing scheme makes us most comfortable with it. Assuming appropriate action by the producers and regulators, decontrol would not prevent us from participation.

Since nearly everyone connected with the project agrees that it must be kept economically viable we are optimistic about our participation.

Q. What is the extent of your financial involvement in the Project as compared to your other business activities?

A. We expect to make a substantial financial contribution for a corporation our size. To put it in perspective, in 1980, our corporation had assets of about $3.5 billion in all its business lines. Our financial participation could be in excess of 25% of that figure. Stated another way, our participation could equate to 4 or 5 times last year's earnings.

Of course, this level of commitment presupposes satisfactory resolution of some key issues, the most immediate of which is this waiver proposal.

Q. What degree of risk does this project represent to your shareholders, customers, and final consumers from failure or delay?

A. If the project fails, our shareholders, customers, and the consumers which our customers serve all stand to lose. The nature and degree of loss will depend on the nature and circumstances of the failure.

The most serious losses take the form of lost opportunities. Our customers and the consumers they serve would be denied access to Alaskan gas. Many of their alternatives (synthetic fuels, imported gas, imported oil) will cost much more over the life of this project than Alaskan gas will cost. Our stockholders will lose a business opportunity, one which is uniquely suited to InterNorth expertise and experience.

Delay costs everyone. As John McMillian has pointed out, inflation continues to drive the cost of this Project up. Each day this Project is delayed, when inflation is 10%, increases its cost by $6-8 million. Everybody loses as the Project is delayed.

Q. What contracts for Alaskan gas have your signed or you contemplate signing?

A. We have signed gas purchase contracts with Exxon and Sohio which cover approximately 18-20 percent of the Prudhoe Bay gas.

Q. What are the take-or-pay, indefinite pricing, and renegotiation clauses in such contracts?

A. Prudhoe Bay gas is "associated" gas, i.e., it is found and and produced in conjunction with oil. As is common with such gas, we are obligated to take or pay for all gas tendered by the producers for delivery.

Under both contracts, the gas is to be priced under provisions of NGPA.

In the event of deregulation of Prudhoe Bay gas, our contracts provide that the producers may elect to redetermine price. These redeterminations are to be based on formulas which generally involve either other prices paid in the general Prudhoe Bay vicinity or equating the delivered price of the gas on our system to distillate prices.

In the event the gas is not marketable, except at an economic hardship, the parties agree to seek ways to rectify such a situation under both contracts.

Q. To what degree do your financial commitments to the Project and the potential liabilities of your customers relate to your Partnership share in the Project versus your actual receipts of Alaskan gas through the Project?

A. Our corporate financial commitments to the Project have not yet been finally determined. Our tentative commitments will be influenced heavily by what is prudent for a company of our size. We will seek to balance the diverse interests we must serve. For example, if it is necessary to more closely balance our financial commitment with our gas dedication, we will do so by adjusting one or the other.

As for our customers, we will exert every influence to insure that they too are treated equitably in relation to other customers of this Project.

Q. What is your perception of the flexibility of regulation at both State and Federal levels, with and without the Waiver proposal, and how might that affect your ability to participate and the costs of the Project to your customers?

A. We are sure that if the regulatory climate is not perceived as reasonable by prospective lenders and other investors, the Project will either cost more to compensate for risk, or the capital will not be available at all. That portion of the waiver proposal which relates to regulatory certainty is certainly going to affect our ability to participate. We understand it also will affect the ability of lenders to make capital available for the Project.

That part of the Waiver package which assures us of the ability to pass along just and reasonable costs to our customers is very important to us. Once a tariff has been finally established, we need to know that we will continue to be able to recover costs which the tariff is designed to collect (as do the lenders).

Q. What are the comparative costs, supplies, security, and risks of consumer liability from the Alaskan Gas Project versus your other gas supply options?

A. As I previously mentioned, we believe Prudhoe Bay gas is extremely attractive as a supply source which will extend well into the next century. This is primarily due to our expectations that the price will decline in real terms over the Project's life. Most other options available in that same time frame will cost our customers more in terms of price (and, in some cases, in terms of security).

For example, there is always an element of uncertainty about gas purchased from overseas. Actually what our company seeks is a mix of supplies, so that if any major source falls short of expectations, we will still be able to serve our customers with manageable adverse consequences.

We are sure that our customers benefit from this approach. For example, we believe the relatively low risk of billing prior to completion is preferable to the risk of relying on imported oil. Any reasonable steps we can take to mitigate our dependence on unstable imports are worth real effort. This Project is such a step.

Q. What will be the effect of your participation in the Project on competition between you and other pipelines which are not participating?

A. From our perspective, Alaskan gas appears to be a very desirable supplement to our supplies, especially in comparison with alternatives that we perceive as available. On that basis we chose to participate in this Project.

Other pipelines had an opportunity to participate also. Their view can only be described by themselves; we do not know how they perceive the other alternatives and the likely costs of each.

Q. To what degree are your other assets and business activities insulated from costs arising from failure or delay of the Project, with and without the Waiver proposal?

A. Without the requested waivers, the project will not go forward and InterNorth's dollar exposure will cease to accrue.

With the waiver package, and assuming that the project goes forward, InterNorth will continue to contribute equity in the form of cash, and exposure will obviously continue to increase until the Project goes into service. Indeed, even after service commences there are risks should there be an extended service interruption. We will not know the full extent of InterNorth's exposure until the financing plan has been defined. However, it appears that, in addition to an equity contribution, InterNorth may be called upon to somehow secure a portion of the debt during the construction period.

Mr. Sharp. Thank you very much, gentlemen.

I failed to indicate at the beginning that the distinguished gentleman from Arizona, Mr. Udall, can't be with us this afternoon. He is cochairman of these hearings. But he has an intense interest in this project.

Let me ask a couple quick questions, then I will open it up for my colleagues.

First of all, as partners in this project, should private financing be obtained, do you still have the option to withdraw from this before the certificate is granted by FERC? Can you individually pull out if you decide this is not in your interests of your company?

Mr. Roff. Mr. Chairman, there is a detailed partnership agreement, and it provides for conditions of withdrawal at various times during the project, even during construction because of course you never know what might be happening in your company that could force you to do it.

I don't have in mind the specific details, but generally then your investment is placed at the end of recoveries, so that everyone recovers theirs before you start getting any of yours back.

Mr. Sharp. Do you think—let me ask it this way. If natural gas is decontrolled in the United States, including old gas, by the time this project is issuing forth with gas, will that substantially change the economics in terms of, if I understand the testimony of all of you, you are basically saying this is an economical project for your customers and for your pipeline.

Will that be changed in any significant way if old gas is decontrolled and there is nothing to roll in, or very little to roll in? Is that possibility changed?

Mr. Roff. You know, of course, the absence of any roll in capacity does have an effect. I do not think that the Alaskan project should have any effect on the decontrol question, nor do I think the decontrol question should have any effect on the pipeline project.

Basically, the Alaskan gas pipeline project depends for its need upon the perception that there will be times in the future in which we are not going to have to have all the imported oil that we want, and that we will want to have domestic supply sources to replace that oil.

We have had an extensive market study conducted by Jensen Associates, and I think it is in the material before you. It sets out different parameters of the marketability, depending upon what happens with respect to foreign oil.

Mr. Sharp. Let me ask you this. Is any one of you likely to have to withdraw from this project if we should in the next year or so deregulate natural gas?

Mr. Roff. United would not withdraw for that reason.

Mr. Raasch. We would expect that the need to prove marketability is still a question. We are somewhat comfortable with the certainty of phasing deregulation.

Mr. Sharp. As it now is?

Mr. Raasch. As it now is, that is right, but it is the certainty that is particularly appealing. You may well hear some people yet discuss how the certainty or uncertainty can be addressed. We would expect that certain assurances from the producers, and certainly approval by regulatory agencies would be required so that we would be comfortable with marketability in the future.

So we would not feel it would be essential to withdraw simply because of decontrol.

Mr. CROOM. We would make the same statement. We feel that there are mechanisms that could be placed into effect to permit the rates to offset any effects of deregulation of gas in the lower 48 States.

Thank you.

Mr. EWING. We would agree with that position. We think that in the unlikely situation that might come about where this gas was not marketable under its price situation, we should have some mechanism in place to cause leveling, which is discussed in the Jensen report and other places, that would allow the gas to be marketed.

Mr. LEPAPE. Pacific Interstate agrees with those previous statements.

Mr. KALEN. Yes, I agree, also.

Mr. SHARP. Gentlemen, thank you. I may have some more questions.

I recognize the gentleman from Oklahoma, Mr. Synar, for 5 minutes.

Mr. SYNAR. Thank you, Mr. Chairman.

I don't know who can answer this, but whichever one of you wants to take it.

I know that you have conducted a number of studies on cost estimates on how much it would cost to complete the entire system. Can you give me the dates of the studies and the total cost estimates for each study that you did?

Mr. LEPAPE. I don't believe any of us have those here. We could supply them.

Mr. SYNAR. Mr. Chairman, I would ask that the committee have those studies submitted.

Mr. SHARP. We will be happy to ask for that information. If the gentleman would withhold, whether or not we include all of the studies as part of the printing record——

Mr. SYNAR. I will withhold on that.

Mr. SHARP. It may be we will want to use the summaries rather than the entire studies.

Mr. LEPAPE. Fine. I was just going to ask for that clarification.

Mr. SHARP. The total can be submitted for the committee. Then, with the gentleman's permission, we can decide whether or not it is worth printing all of it.

Mr. SYNAR. Any way to save money.

Obviously we have watched the total cost estimates for this project rise steadily over the past few years. In fact, it has increased several hundred percent. What estimated cost does this project have to reach before you all get concerned over the economic viability of the whole project?

Mr. LEPAPE. I believe we are concerned about it now. These numbers are getting quite high. One of the most important things that we felt as a prerequisite to making those decisions and being able to make a marketability study was the competency of the studies, the engineering work that has been going on for all of these years.

We have a high level of confidence in the engineering work which has been done. We have difficulty, speaking as one company, in trying to estimate what rate of inflation and what interest cost we should use in making that final calculation.

Mr. SYNAR. Maybe the question I would like to ask is: If this project costs $10 billion above the $30 to $40 billion that is now estimated, does that make it economically unviable?

The reason I ask this questin is simply that I want to know in my mind that this is not going to cost $10 to $20 billion more than what we were originally estimating—I mean this $30 to $40 billion—since we have already increased it 100 percent already.

What assurances do I have from you all we are not going to look for another $20 billion?

Mr. LEPAPE. I think if I can take the first question.

Mr. SYNAR. Sure.

Mr. LEPAPE. I think whether or not it would be in the Nation's interest to proceed with the project if the costs were higher than some of these numbers, I think the answer to that would have to be based on what are alternative fuel costs for the Nation.

That, in turn, would be a function of what rate of inflation has transpired between now and the time that the gas would be available, what success we have in obtaining additional supplies of gas for the lower 48 States from Canada.

We have attempted to anticipate all types of cost overruns in making these studies. We are yet to appear before the Federal FERC for the final test of marketability. So I don't feel that I am competent to answer in absolute terms whether $1 billion more or $5 billion more would be the break point.

Mr. SYNAR. You have kind of left the door open, though, for another several billion in additional costs, by saying it might change and more costs might be necessary, depending on marketability and what the system could afford.

Mr. LEPAPE. What we have attempted to do in the forecast to date is put a range of what we think would be the inflation rates. These numbers that have been calculated——

Mr. SYNAR. Is this a liberal range or a conservative range?

Mr. LEPAPE. They run from 9 to 11 percent rate of inflation, and I think it is 10 to 14 percent in interest costs. We checked the record and material that has been filed.

Mr. SYNAR. Would you gentlemen for the record give me some assurance that you are not going to be back in here in a year or two and ask for additional waivers or other Federal assistance?

Mr. ROFF. Congressman, I certainly will not give you any assurance that this waiver package will be the end of the line for everything required to finance this project. I would point out to you that we are not in here asking for Federal guarantees of the debt.

Mr. SYNAR. Will you give me the commitment and assurance you won't come back later?

Mr. ROFF. I will give you the assurance that I won't ask for Federal guarantees.

Mr. SYNAR. How about the rest of you?

Mr. ROFF. Congressman, let me just finish that, if I could. I will say this, that I think if this project doesn't get built as we are now trying to do it, that the next time around it will be done by the Government, and I think it will be done.

Mr. **Synar**. What about the rest of you?

Mr. **Croom**. Mr. Congressman, I would like to say that we are quite satisfied that an extensive engineering and economic study has been done on this project. We are comfortable with the numbers, but we are here today to ask that the committee give consideration to a waiver of law that is necessary to commence negotiations for financing of the project. Without that waiver, we do not see this project going forward at the present time.

Mr. **Synar**. I commend all of you for your great tact and politics. You sound like me at a town meeting sometime. But nobody wants to stand there and say you are not coming back here for Federal assistance.

Mr. **Croom**. I have no plans at this time.

I would have to say that the merits of the project in the future, given what the alternatives are to secure energy, may far outweigh what we see as the value of this project today.

So, that would preclude my giving a commitment to you in any fashion.

Mr. **Kalen**. Mr. Congressman, may I make a few comments? We are confident in our engineering work on this project. We are not confident in what the future inflation rate will be. If you could assure us what the inflation rate would be, we would assure you we would not be back in here again.

Mr. **Synar**. Thank you.

Mr. **Sharp**. Yes.

Mr. **Ewing**. Mr. Congressman, I cannot give you any assurance I won't be back. I think this project——

Mr. **Synar**. Thank you for your straight answer.

Mr. **Ewing**. I think this project is very important for this country. If that is necessary, we will be back, but we will do everything within our ability to make this go on a private basis.

Mr. **Raasch**. I would support most of the things that are said. We cannot assure you that we won't be back. Indeed, for us to do that might deprive you of the opportunity to make a decision which you might feel is in the best interests of the Nation.

Mr. **Synar**. Thank you, Mr. Chairman.

Mr. **Sharp**. Recognizing in order of appearance, the gentleman from Kentucky, Mr. Rogers, is recognized for 5 minutes.

Mr. **Rogers**. Thank you, Mr. Chairman.

I guess like all of you, we are concerned about the aspect of the waivers that allow the billing of customers prior to the completion of the project, and as a matter of fact whether or not the project will ever be completed.

Suppose during construction of the project the waivers are granted, billing proceeds, and some event occurs which prevents the completion of the project prior to the receipt of any gas on these shores in the lower 48 States.

What happens to the funds which have been paid in by the hundreds of thousands of customers of your companies into the trust fund for this construction?

Mr. **Roff**. Congressman, if a segment is not complete, then the equity owners, the pipeline companies here, then, suffer that loss in their equity investments. If the Alaskan segment is complete, but say the conditioning plant for some reason were not completed and the project never flowed gas, then the pipeline companies would flow through to their customers an amount which would recover debt service, which would recover operating costs and direct taxes, but would recover nothing of their equity or any return on their equity.

Mr. ROGERS. So in that event the customer would have paid for a period of time an increased billing without having received an additional amount of gas, and the end result would be that he or she would be out a goodly sum of money and never have received anything for the increased bill. Is that generally correct?

Mr. ROFF. Congressman, there are studies as to how much it is. There is an amount paid under this minimum bill until the debt is discharged. Of course, we will not be happy in that event because we will have lost many hundreds of millions of dollars of equity.

Mr. ROGERS. Well, I would suspect that you would not be alone in your unhappiness, that there very well could be hundreds of thousands of ratepayers who would have never received anything who would be absolutely irate, not only at you but at Members of Congress who would have approved such a plan.

What kind of increase in the average consumer bill could we expect as a result of the granting of the waivers, or is there such a figure available?

Mr. LEPAPE. We don't feel that the passage of the waivers would increase the cost, except if you want to look way down the road. As I indicated in my prepared statement, we believe that if the waivers are not granted, we will not privately finance the project and you are going to have further delays and a greatly increased capital cost. So what we would be comparing is what it would cost us with the waiver package to go forward versus what the customer would pay if the project is delayed and is ultimately built at a later time at a higher cost by the Government.

Mr. ROGERS. As I understand the waivers, a portion of them would allow the billing of consumers prior to and even whether or not the project is ever completed. Is that not correct? That is a part of the proposed method of financing, is it not?

Mr. LEPAPE. Well, excuse me. The actual cost, the only portion of the billing that would be permitted to occur before gas flows would be after a segment is completed, passed a date certain and then for only the items which Mr. Roff enumerated for you.

If we were not to have that billing take place, but those costs were continued to be capitalized, the total cost to the customer over the life of the project would actually be greater than would be the cost if some of those charges were to take place in the early years.

There would be more charges in the beginning, but in the total life of the project those costs would not be capitalized, added to the rate base and then an earning component added to it in the cost of service.

So I do not believe passage of the waiver would in any instances increase the cost to the consumer. I believe it will reduce the costs of getting this energy supply to the Nation's gas consumers.

Mr. **Rogers**. Well, as I understand you, the increased billing would not occur until at least a portion of the construction were completed, is that correct?

Mr. **Lepape**. Actually, Mr. Congressman, it would actually be a complete section. One of the three segments of the entire project would have to be completed.

Mr. **Rogers**. That wouldn't necessarily mean that the consumers on your companies would be receiving gas from the field, though, would it?

Mr. **Lepape**. No, sir, all sections would have to be completed before gas could flow from Prudhoe Bay.

Mr. **Rogers**. So theoretically, for example, a consumer on the Texas Eastern line would be paying increased billings before Texas Eastern ever got an ounce of gas from the Alaskan field. Is that correct?

Mr. **Lepape**. Perhaps let Mr. Ewing address the company's customers.

Mr. **Ewing**. Well, I sell gas to the gentleman on the left, so——

Mr. **Lepape**. Well, I will be glad to stay with it.

Mr. **Ewing**. His customers would be paying prior to the flow of gas.

Mr. **Rogers**. I am sorry. I didn't understand the answer.

Mr. **Ewing**. The customers that he serves that we deliver gas to, his company, would be billed prior to the flow of gas.

Mr. **Croom**. I would like to expand on those comments, Mr. Congressman.

First of all, we feel that the chance of a prebilling feature being implemented is a minimal risk. Secondly, looking at the incentives that will be provided in this project, once the date is established by the FERC as to when the project should be completed, it will not be to the advantage of any sponsor of the project to finish a segment before that date inasmuch as we will not earn anything on the investment sitting in place.

Likewise for every day of delay after the date, it will be an expense to the sponsors if that incentive rate of return is going down. There is a real incentive to finish on schedule.

Even should there be a delay in some segment, and the feature would have to be implemented, we think the cost of that is minimal compared to the advantages that will ultimately pass along to the consumers; that is, over a period of time this gas will offer vast savings over other alternates that could be provided. We think that is important.

Every day there are many dry holes, but the cost of that is averaged in with the cost of the gas that is found. That is passed right on to the consumer. So today the consumer is bearing the risk of failure and success, which is a normal part of our business.

I don't mean to belabor that analogy in what we are talking about here, but I think the risk is minimal of this feature applying for more than a matter of months. Should it apply, it will certainly be averaged out and still result in cheaper gas than any other alternate we see.

Mr. **Sharp**. The time of the gentleman has expired.

The gentleman from Louisiana was next.

Mr. TAUZIN. Yes, sir. I would like to ask the obvious question. What are the alternates? If this project is not completed, Mr. Lepape, you have testified that your part of the country in California does not have a fuel oil distribution network and coal is not easily available.

Others have testified the primary market does not include indigenous sources of energy. You all have testified you need to increase your natural gas supplies and that fuel from the lower 48 is likely to decline rather than increase.

If you do not have this project completed what are your alternatives? Each of you.

Mr. LEPAPE. Congressman, we are looking to expand our efforts in self-help in domestic drilling. We attempted to support, with the gentleman on my right, a coal gasification plant which got to the place that we couldn't finance that and had to abandon that project.

We are seeking LNG supplies. We basically don't see viable alternatives that could satisfy the needs of our customers who—really, it is an inelastic demand in one sense because we can't replace all of those facilities in southern California to burn another fuel if we had it available.

In the steam plant area, in the industrial area, many of those customers could burn additional oil, additional OPEC oil. That is one alternative.

We have the problems of smog in southern California, so we are looking at the low sulfur fuel oil as an alternative fuel, which is a more expensive fuel than the higher sulfur from residual.

So, that is part of our dilemma in seeking alternatives. We feel this is absolutely essential. Of course, we are buying, since October, Canadian gas. We have a contract that extends for 10 years, 12 years, although we have only 8 years approved so far.

We will be seeking an extension of that export license. Certainly we think the forward movement of this project will enhance our opportunities to convince the Canadians to extend that export of very much needed gas.

Mr. EWING. Mr. Congressman, in my opinion the only feasible alternate, laying aside the unique problems of the southern part of California, would be the importation of more crude oil.

Mr. CROOM. Mr. Congressman, I have attached to my prepared statement a breakdown of our 10-year demand and supply projections. Given what we see, we think even with accelerated exploration and development in the lower 48 States, those volumes will not be sufficient to offset the decline.

We are still looking to supplies from some LNG to be imported. We are looking to additional volumes from Canada. It is questionable as to how much we can really look to to the north.

We don't see coal gasification as being meaningful within the next 15 years in terms of the kinds of volumes we are talking about. What it tells me is that the Alaskan gas is not only going to be meaningful in terms of the volumes that we have projected here, but we think it will open up vast additional reserves which could ultimately be dedicated to this project and make an even more meaningful step to satisfying our gas demand than what we have based the feasibility of this project upon.

Mr. TAUZIN. Mr. Raasch?

Mr. RAASCH. Our company has taken a good look at coal gasification. We were funded for a time by DOE on a feasibility study for North Dakota synthetic fuels plant. We lost that. We are continuing it at a somewhat lower level.

Obviously, imported LNG carries with it some special problems, some which some countries and companies have not been able to resolve.

Canada, we are right next to Canada. We get gas from them right now in our system, but I am sure you are aware of the recent National Energy Board decision, so it looks a little bleak until the one great hope to bring that together, the Alaskan pipeline, becomes a reality.

Mr. SHARP. The time of the gentleman has expired, but if the other witnesses have comments, go right ahead.

Mr. ROFF. I would only add that basically it would be imported oil.

Mr. SHARP. The gentleman from West Virginia, Mr. Staton, is recognized for 5 minutes.

Mr. STATON. Thank you, Mr. Chairman. Thank you all for being here today.

I would like to ask a couple of questions regarding the estimated time of construction of the entire project. I guess, Mr. Croom, I would direct the question to you. What is the estimated construction time for the project?

Mr. CROOM. We would hope to have approval in the spring of 1982 from the FERC to proceed, and to have gas ready for delivery in the fall of 1986. So that is the timespan we are talking about in terms of putting this project together financially and constructing it and having gas ready for delivery, the fall of 1986.

Mr. STATON. About 4½ years, roughly, to build the entire thing, all of it, the construction, conditioning plant, and all three sections?

Mr. CROOM. Well, the actual construction of the pipeline on the North Slope I believe would not get underway until the 1983 period. But the advanced materials—and we had some testimony from Mr. McMillian yesterday as to the rolling capacity of mills to roll this 48-inch pipe—building of the conditioning plant, which would be done on the western coast of the United States and then would be shipped up in modules, of course would get underway within the 1982 period.

Yes, it would span that period of time.

Mr. STATON. What happens—and I refer to the prebilling section, which is a concern of mine, and perhaps others, too—if the entire section or all of it has been completed before, for example, the FERC deadline? Could you begin operations at that time?

Mr. CROOM. If the entire project were to be finished ahead of that? It would surprise us all.

Mr. STATON. That being the case, isn't it likely, though, that some section is going to be completed prior to the time the others are, and that there would be indeed a time when people were paying for gas that they were not receiving?

Mr. CROOM. Well, certainly there is an incentive built into the mechanism which is called the incentive rate of return that would provide on incentive for this project to proceed on schedule, and indeed, to try to finish ahead of schedule.

But there is, as I pointed out earlier, any segment that finishes before the date that would be established by the FERC would be a huge investment sitting there with no return, no costs passing to any consumer, and so the incentive is not so much to finish ahead of the FERC date. There is plenty of incentive to finish on that date and not to let that date slip beyond because that will bear directly on the rate of return to the sponsors of this project.

Mr. **Staton**. Then the prebilling mechanism would only go into force if the entire project or any section was completed after?

Mr. **Croom**. After a date that would be established by the FERC. I think rather than continually addressing ourselves to the likelihood that this would happen, we should consider it a contingent possibility. A mechanism would be there in the event the project were ready to go, but let's say the gas-conditioning plant on the North Slope were to have some unfortunate event that might decommission it for a couple of months. That is the kind of thing we are talking about.

Obviously the incentive to get that back on stream and ready to flow as soon as possible is still there, so there is nothing to be gained by the sponsors by seeing any of this project delayed.

Mr. **Staton**. Would it be in the best interest of the consumers, perhaps, for us to look toward FERC to set a completion date in the spring, perhaps, rather than fall of 1986, the spring of 1987, so that if there was slippage at all in the completion of it, that those few months would be taken up by warm weather, and perhaps air-conditioning might be a slight problem, but heat wouldn't be?

Mr. **Croom**. Well, of course, when the FERC has finished all of its proceedings and it has issued an order and a certificate, that certificate, including the date we are talking about, has to be acceptable to the sponsoring parties or there will not be any project, obviously.

So it would be to our advantage to accept an order which includes that date, a date acceptable to us.

Mr. **Sharp**. The time of the gentleman has expired.

Mr. **Staton**. Thank you, Mr. Chairman.

Mr. **Sharp**. Thank you.

The gentleman from Indiana, Mr. Coats, is recognized for 5 minutes.

Mr. **Coats**. Thank you, Mr. Chairman.

I would like to pursue a question with you that has been touched on but not dealt with in detail. That is regarding the amount of both proven reserves in the lower 48 States and estimated deposits of natural gas that might yet be discovered.

Both Mr. Ewing and Mr. Lepape, I think, indicated that more imported oil is the only alternative to their companies or to this country for not building the pipeline to tap the natural gas out of Alaska.

I am wondering if the rest of you gentlemen share that view, and if your companies have come up with estimates of possible undiscovered reserves. Are we really in the same situation we were in 1974-75, when everybody was estimating that the gas would die out in 7 years hence, or can we be more optimistic than that?

How would this change your view if we have sufficient undiscovered reserves in the lower 48 States? How is this going to impact on the completion of the pipeline?

Mr. **Croom**. I would be glad to comment first. I believe the latest studies that I am satisfied with show that we have proven reserves right now around 195 trillion cubic feet. If you look at the potential gas committee's estimated undiscovered resources in the United States, those are in the neighborhood of around 940 trillion, something like that. So, we would be looking at a 40- or 50-year supply on that kind of basis.

The problem as we see it, as we are continuing to explore these undiscovered resources, a large part of which are in the Rocky Mountains. They are in deeper horizons. It is more difficult drilling, it is deeper drilling and deliverabiilty is going to be slower for the reserves that are being discovered.

So, what we see is a deliverability problem, that we will have difficulty finding new reserves, developing those and having those produced at a rate equal to those of the rather prolific supplies out of the Gulf of Mexico that are rapidly declining.

That is the principal difficulty we see. We do see right now in Alaska, for the purpose of this project, some 26 trillion proven cubic feet of reserves with substantial unproven reserves in the 100- to 145-trillion range that could be further developed if the incentive is there. The pipeline would provide that.

So, I think the difficulty in the lower 48 States is that deep drilling is not going to offset the decline we have right now.

Congressman, you understand that 26 trillion proven is in the 195 trillion figure of proven for the Nation, and the 900 trillion we all hope is there and will be found, that that includes that 145 trillion in Alaska.

I think that all of us here, I think, would certainly believe that it is very much important to our companies and important to the Nation for there to be access to these vast amounts of Alaskan reserves.

Mr. **Coats**. None of you necessarily disagree then with the 940 trillion cubic feet estimate?

Mr. **Roff**. No one knows, of course, but it sounds like the accepted estimate.

Mr. **Coats**. Probability of that.

Mr. **Roff**. I think there are numbers that are occasionally a little bit higher and that occasionally there are numbers that are more pessimistic. So I think, well, the producers will be able to speak more authoritatively on this subject.

Mr. **Coats**. No further questions, Mr. Chairman.

Mr. **Sharp**. The gentleman from Ohio, Mr. Brown, is recognized for 5 minutes.

Mr. **Brown**. Gentlemen, I want to go through a little list here of what I think people get out of this waiver package, various participants. If you disagree with us, I wish you would speak up.

The oil companies under the waiver package—and this is what we are talking about, the waiver package over the previous arrangement—after the waiver package get something that they did not have before; that is, equity participation for having agreed to make loans to the pipeline consortium. They get something for their money as a result of this.

Would you agree?

Mr. **Raasch**. They also contributed a great deal to it, as many people have already said. The financial strength of the producers did a lot to get the attention of the banks and the funders.

Mr. **Brown**. I didn't say they shouldn't get it. I am just trying to see if you differ, if they get something else I didn't mention or if I am wrong in what I think they get.

Mr. **Kalen**. Congressman Brown, may I elaborate just a minute? They get, by bringing the producers into the project, it enables us to at least have an opportunity to try and privately finance this project. Their equity is exactly the same basis as the pipeline equity.

Mr. **Brown**. What do the banks get under the new deal with the waiver package which they didn't get before the waiver package? It seems to me they get a far more creditworthy borrower, as you have suggested, as the pipeline consortium is backed by the customers of the participating pipelines, first.

The pipeline consortium, even with the participation of major oil companies as partners, apparently are not creditworthy enough without the assurance to the bankers that the customers will stand behind the effort.

There is doubt as to whether even shifting the contingent liability of the customers by operation of Federal law will make you all sufficiently creditworthy to acquire financing. Is that correct?

Mr. **Roff**. Congressman, you understand that the shifting that you speak of is a very limited shifting, and in that context I would say that you are correct, that it is an open question as to whether the group would then be, as you call, creditworthy enough to achieve private financing of the project.

It will in fact, though, as you suggested, make the project surely more nearly creditworthy to have, you know—more nearly creditworthy.

Mr. **Brown**. What do the participating pipelines get under the waiver package? It seems they get absolute assurance that whatever the cost of the system turns out to be, they can pass that cost on to their customers without necessarily delivering gas. Is that correct?

Mr. **Roff**. No, Congressman, that is not correct.

Mr. **Brown**. All right.

Mr. **Roff**.That depends upon further orders by the FERC.

Mr. **Brown**. Wait a minute. The pipelines also receive, don't they, an important change in regulation? The FERC established that regulated pipelines will have no legal authority to alter or pass through the cost if the pipeline is adopted, is that correct?

Mr. **Roff**. That is correct.

Mr. **Brown**. Additionally, there is a great deal of dispute over how much, if any, real authority remains to the State regulatory commissions to regulate the cost. Is that correct?

Mr. **Roff**. Congressman, let me comment first on your point about the FERC.

Mr. **Brown**. All right.

Mr. ROFF. The FERC is not required to issue a certificate, and if they do issue a certificate, we are not required to accept the certificate. But once the certificate is issued and once we have accepted it, then under the waiver package it cannot be amended.

Mr. BROWN. Is there anything wrong then with what I said?

Mr. LEPAPE. Congressman Brown?

Mr. BROWN. Yes.

Mr. LEPAPE. I believe that with the approval, assuming we obtain the final certificate from the FERC, that under this tariff the cost must still be prudent. What would be limited, as I understand the proposed——

Mr. BROWN. If FERC decides they are prudent, they are prudent; isn't that correct?

Mr. LEPAPE. That is correct, but that is still not a decision for us to make. We don't get carte blanche as to what we can put into that cost of service. The provisions of the Natural Gas Act requiring that FERC pass on the reasonableness of the individual charges still remain.

Mr. BROWN. I wonder if we could go to what customers get. That is the next, the basic question I guess here, whether or not the pipeline actually receives financing is a decision which the bankers will make, and not the Congress, through this waiver package.

We have established that, but what we will in fact decide in the Congress if we approve the waiver package is that the customers, participating pipelines, will absolve the sponsors for all liability to get for any segment or segments completed and tested. Isn't that correct?

Mr. ROFF. Absolve the pipelines? It is not the sponsor's debt. There is 25 percent that will be put up as capital by the pipelines comprised of the equity and the debt of the pipeline companies themselves.

Mr. BROWN. Yes.

Mr. ROFF. There will be nothing returned on that.

Mr. BROWN. Yes.

Mr. ROFF. Upon completion, the minimum bill provision. Instead, the debt portion, the other 75 percent which the banks are advancing, they will be assured of having their debt amortized out of this minimum bill. The pipelines will still be at risk.

Mr. BROWN. Explain to me how the pipelines will be at risk. It seems to me that once it is completed and tested, the customers do not necessarily receive gas. They do not necessarily receive a totally completed pipeline.

We do, however, receive a bill so long as two events occur: One, enough time passes that the date certainly established by FERC pursuant to the waiver package as a projected completion date, that that date does occur. In other words, time has to run and the date certain has to be reached.

Second, if any one of the three segments is completed and tested by or after that date certain, then the customers get the bill. Isn't that correct?

Mr. ROFF. They get a bill, and the bill consists of the amounts of operating expenses, direct taxes and the debt service, the project debt service.

The equity that the pipelines have put into it from their capital is not returned, nor is any return on that equity provided.

Mr. **Brown**. So the pipelines are stuck, too?

Mr. **Roff**. Yes, sir.

Mr. **Brown**. But you all aren't?

Mr. **Roff**. Well, we are pipelines.

Mr. **Brown**. I am sorry. The pipelines are stuck only on the equity, but on the operation of the situation, there is no——

Mr. **Roff**. All of the money that we have in, all of our money, which for all of us would be several billions of dollars at that point, would be at risk.

Mr. **Brown**. But the debt service, the debt——

Mr. **Roff**. The amount that the banks have put in as their project amount that is not supported, that additional increment not supported by our credit, the amount that the banks have put in as the project is supported by the minimum bill?

Mr. **Sharp**. The time of the gentleman has expired.

The gentleman from Oregon, Mr. Weaver, is recognized for 5 minutes.

Mr. **Weaver**. I would just like to say that the questioning by the previous gentleman was excellent, and I enjoyed it very much.

Thank you, very good.

Mr. **Brown**. Thank you.

Mr. **Weaver**. When the gentleman from Louisiana asked you gentlemen if there were alternatives, I was surprised that you did not mention the possibility of building a methanol plant at Prudhoe Bay and shipping the liquid methanol down the existing pipeline.

We are going to have testimony from some of the best petroleum engineers in the country to the effect that this is a highly feasible way of delivering the gas from Prudhoe field, and that it would save many tens of billions of dollars.

I heard you mention, Mr. Lepape, that you have got boilers in southern California that would need fuel. Could they use methanol? Could they be converted to methanol?

Mr. **Lepape**. Yes, they could, Congressman Weaver. We studied extensively the methanol alternative since 1969. The various projects—there have been three or four groups, as you know, over the years.

This has been a subject of extensive study, intensive study. There have been changes in the art. People have continued to study it, and it is the opinion of my company on the very latest information we have been able to obtain and study that it is still not a preferred alternative for moving Prudhoe Bay's gas to our market area.

Mr. **Weaver**. Dr. Marsden from Stanford University will have a new article published in the petroleum gas journal in the next couple of weeks that makes a very good case. We would like to see some debate here.

To a layman, and in this field I am certainly less than a layman, I know nothing about your business, it makes eminently good sense to me. He says you can do it for $6 billion, and in many ways ship the materials in a more satisfactory way.

Mr. **Ewing**. Mr. Congressman, we too have been a part of these studies back in the days of 1969 through the seventies. Extensive studies have been made by engineering firms. The producers themselves have made studies, and they believe, have reported out to us and confirming our studies, that this is not the preferred way to do it.

Mr. **Weaver**. Why?

Mr. **Ewing**. Because of cost, the waste of gas. You lose 25 to 30 percent of the gas immediately in the process.

Mr. **Weaver**. There is loss, but also there is loss to the oil field itself by taking out the amount of gas to keep that pipeline filled which is going to deplete the pressure in the oil fields, and you will lose a lot of oil in that way, too.

Mr. **Ewing**. I think you ought to address that to the producers, but that loss is minimal compared to the loss of making methanol.

Mr. **Weaver**. As I say, there are things we are going to have to explore.

Mr. **Ewing**. Fine. I think that is a better alternative than submarines, dirigibles, and 747's flying LNG out, which we studied also.

Mr. **Weaver**. We are going to have a hearing later on in the Interior Committee on a bill of mine germane to this issue here. But quite likely you will not testify on that, so I would like to ask you a question.

It is my personal concern that while this country is very strong today, as we deplete our oil and gas reserves—and your testimony here says we are doing just that—that down the pike 20, 30, or 40 years we are going to be real short of oil and gas.

I am concerned that my children and their children will not be properly defended against our adversaries in the world, when the People's Republic of China and the Soviet Union continue to have vast oil and gas reserves and we don't, how are we going to fuel our ships, planes, and tanks?

I am very concerned about this. I don't want this Nation to be a third rate nation. If we deplete our fossil fuels, it will become so.

So therefore my bill provides that we set aside oil and gas fields strictly for military uses, many, many years, many decades down the pike.

I would like to know what you think about that, the idea of doing that.

Mr. **Ewing**. Mr. Congressman, I think this pipeline is necessary in order to open up all the reserves of Alaska. There are tremendous reserves to be found, we believe somewhere between 100 and 200 trillion cubic feet. We think it is proper to exploit those reserves, get them ready to come down to the lower 48 States.

Mr. **Weaver**. Excuse me. I understand that. I wonder if you might answer my question now.

Mr. **Ewing**. I am coming to your question now. In terms of total energy, this country is very rich in coal. That really is the answer to the long range. I have a large family and I am concerned, too, but coal can be made into gas, coal can be made into liquid fuel.

Mr. **Weaver**. When Theodore Roosevelt sailed our fleet around the world in 1905, I believe it was, those battleships were coal-fired. But I don't think they compete very well with an oil-fired or whatever Soviet battleship or submarine, and I think we better have that.

We all know the other alternatives are very expensive.

Mr. SHARP. The time of the gentleman has expired.

Mr. WEAVER. Let me just have a show of hands, Mr. Chairman. Does anybody here oppose the setting aside of some oil and gas reserves for our military security down the pike?

Mr. EWING. I believe we are doing that.

Mr. ROFF. Mr. Congressman, we really haven't focused on the specific issue of receiving fields. You know I am certainly not in a position to comment on it. I would say this, that it is a very real and definite question for us to be dealing with. I think that that certainly exists.

Mr. SHARP. Thank you.

The gentleman from Washington, Mr. Swift.

Mr. Swift is recognized for 5 minutes.

Mr. SWIFT. Thank you very much, Mr. Chairman.

On page 4 of your prepared statement you say:

> Our company summarized its concerns relating to the financeability of the transportation system, pointing out that the company could not provide guarantees referred to in the President's decision without placing the company in severe financial jeopardy.

That is a quote.

Yesterday in the hearing I had some question, and I didn't quite understand the answer. The question was after we had established that the public will be at some risk, and that risk may be large or it may be small, but at some risk through the prebilling mechanism.

The question was, why is it appropriate for the consumers to assume that risk without, if the entire project is a success, being able to share in the profits. I was wondering if this panel had a more satisfactory response for that than I was able to get yesterday.

Mr. RAASCH. Congressman Swift, I believe there will be testimony later by a firm which has computed the net national economic benefit and approximately, as I recall the number, $40 to $90 billion present value is attributable to the Alaskan project, most of which would go to the ultimate consumer.

Mr. SWIFT. In what form?

Mr. RAASCH. In lower fuel prices than what would be available from alternative fuels. I think that would be a very good place to focus some questions.

Mr. SWIFT. If you were to go out and try and raise money from a stockholder because they were going to benefit on net national economic benefits, do you think you would sell much stock?

I mean, you are really asking the consumer to invest in the project. I don't have any problem with that. Why shouldn't he benefit proportionally, as would a stockholder of the company if the program is successful, if he is assuming some risk if it is not successful?

Mr. RAASCH. Well, we believe they will realize the benefit in costs avoided rather than, as in the case of a stockholder, a return of earnings. But we think those are just as real and should be taken account of in making this decision.

Mr. **Swift**. That is the same answer I got yesterday.

Mr. **Croom**. Mr. Congressman, the consumer is presently bearing in his energy costs certain risks that are being borne by the industry every day in finding energy. Those are energy costs right now. I think we are focusing too much attention on the possibility of applying the costs we are talking about here in a prebilling period of a matter of months.

The overall cost savings of energy which this project will provide the United States will far overshadow the kind of costs we are talking about.

Mr. **Swift**. I suppose from a public policy standpoint the thing we are really being asked to do is, without asking the consumer whether he wants to share the risk, we are going to superimpose that upon him.

A person who buys stock makes a voluntary judgment. We are going to place the consumer involuntarily in a position to assume some of the risk. If you can't sell to a stockholder on the basis of these rather ephemeral savings, I am not sure that the public should be expected to do that, either.

Do you want to try again?

Mr. **Raasch**. Yes, Mr. Congressman. The thought of avoiding costs for the ultimate consumer is probably what undergirded the entry of the Federal Government into the regulation of the field price of gas many years ago.

It was an honorable goal, a laudable goal. The only thing was that it only addressed one side of the equation, and that was the price side.

What happened was that there was no gas. We feel that if we have the right reasons and if we can find the words to tell people why the cost of energy is going up and why it must go up, we would prefer to tell that story than the one we told in the last decade, which is that no, we cannot furnish gas service to new homes. Yes, you must close factories and schools.

We see the other side of that responsibility and treat it as a very grave responsibility. So we are attempting to make a decision looking at both sides of it, concern for supply and for price.

Mr. **Sharp**. The time of the gentleman has expired.

Mr. **Swift**. That is too bad, Mr. Chairman. Thank you very much.

Mr. **Sharp**. The gentleman from California, Mr. Dannemeyer, is recognized for 5 minutes.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. Raasch, will your participation in this project change if all natural gas categories were to be decontrolled, which assumes, therefore, we would be disposing of all so-called cushions of old gas with which to average or roll in the high initial cost of the delivered cost of that gas?

Mr. **Raasch**. Mr. Congressman, you said control. Did you wish to say decontrol?

Mr. **Dannemeyer**. I thought I said decontrol.

Mr. **Raasch**. I understand the question.

Mr. **Dannemeyer**. Putting it another way, if we decontrol the price of all gas irrespective of category tomorrow, would you still yearn for your participation in this project?

Mr. **Raasch**. That is something we would need some time to evaluate, but let me give you my feeling on it.

I believe that phased deregulation is not inappropriate. We are not uncomfortable with it. I also believe that, and I have heard some very effective and persuasive presentations in this regard, that the market will do some things and direct some thing——

Mr. **Dannemeyer**. Mr. Raasch, you are hedging. That question can be answered yes or no. If you can't answer yes or no, you can tell me.

Mr. **Raasch**. I believe we will still be zealous in our efforts to bring natural gas from Alaska if there were decontrol. Not quite as comfortable with it as now, but yes, we would continue our efforts.

Mr. **Dannemeyer**. Thank you, sir.

Same question, if it is clear to you.

Mr. **Croom**. Yes, Congressman.

I think I addressed this earlier, but I will repeat my statement. We, like Mr. Raasch, continue to support phased deregulation. Given the scenario you describe, we believe with net-back pricing arrangements that would be worked out with producers on the North Slope we would still support this project.

Mr. **Dannemeyer**. Mr. Ewing?

Mr. **Ewing**. I repeat what they say and I would like to add, as I did before, that we would be very uncomfortable with it. Before we went into the project, we would look to some approval of a leveling mechanism that would allow the gas to be competitive in the early years when it would be most difficult.

Mr. **Dannemeyer**. Now you are going the same tact initially as Mr. Raasch. You are hedging. Let's assume tomorrow the Congress and the President signed a bill deregulating the price of all natural gas in this country. Would you still be a willing participant in this project?

Mr. **Ewing**. I repeat that I would be uncomfortable. Irrespective of whether you passed that bill or not, I think a leveling mechanism needs to be in place at the FERC to allow the gas to be marketed if, under whatever circumstances come out of deregulation, if they occur.

Mr. **Dannemeyer**. Mr. Lepape?

Mr. **Lepape**. Congressman, I believe we would continue to support the construction of the Alaska Highway project. I believe we need this gas. We would have to negotiate with the producers an appropriate price for the gas, but I believe the Alaska Highway project's job is to build the facility.

The shippers have to buy the gas and market the gas. I believe we need this facility. The sooner we get it built, the less capital we will have tied up in it and the cheaper will be the cost to move this energy to our customers.

We would try to find a way to continue moving forward, and I believe it would be built whether or not we have deregulation.

Mr. **Dannemeyer**. I thank you.

Mr. Roff?

Mr. **Roff**. Mr. Congressman, if deregulation were to pass, that would not slow us down from either participation in the project or being a shipper.

Mr. **Dannemeyer**. Thank you.

Mr. Kalen?

Mr. KALEN. Mr. Congressman, we also believe that it is imperative that this system be in place and whether or not we have deregulation. We would continue to support the project.

Mr. DANNEMEYER. I thank you.

I thank the Chair.

Mr. SHARP. Thank you.

Several members of the panel have asked to ask further questions, so what I thought I would do is try to hold everybody to 2 more minutes. Hopefully not everyone will want to take their time.

Mr. Tauzin, does the gentleman from Louisiana have any further questions?

Mr. TAUZIN. Only to illuminate the question Mr. Swift asked.

Isn't it true that where producers own pipelines that not only are consumers presently paying the risk of assuring new supplies from production activities, but also paying the risk of pipeline construction as part of the gathering systems that producers have, particularly out in the offshore areas?

Mr. ROFF. Congressman, whoever owns the pipeline facilities, of course, those costs must be recovered and they are recovered only from consumers. So I think you are right.

Mr. TAUZIN. They are covered in front or behind the project somewhere. Very often in front of the project, when you are talking about risk capital to explore and put in gathering lines and other pipeline facilities.

Mr. ROFF. Yes, sir.

Mr. TAUZIN. That is a very common function of the marketplace. Mr. Swift's question I suppose is, in this case, Why should the Congress be mandating it in this case? Is it a function of the immensity of the project that requires it in this case?

Mr. ROFF. Congressman, I think it is a function of the immensity of the project, and also of the capital markets that it is just clear that if we are to have project financing, the concept of that is that 25 percent of the cost of the project is at the risk of the pipeline sponsors in their equity contribution, and 75 percent is supposed to be supported by the flow of the gas itself.

Mr. TAUZIN. Yes, I understand that.

Mr. ROFF. The banks have told us that, well, you know, until that project is flowing gas, you know, and we don't have support for our 75 percent. This waiver package is intended to partially address that problem.

Mr. SHARP. The time of the gentleman has expired.

Mr. TAUZIN. One last question.

Isn't the consumer, whether he pays in front or behind the project, isn't he also buying not only some net national value, whatever you want to call it, but isn't he also buying security of supplies? Isn't that a valuable thing for consumers in those parts of the country to have, where they don't have them today?

Mr. ROFF. Yes, sir.

Mr. TAUZIN. Thank you.

Mr. SHARP. The gentleman from West Virginia, Mr. Staton.

Mr. STATON. Thank you, Mr. Chairman.

I would like to address a question perhaps to Mr. Ewing or anybody else who wants to answer. I think there is a real problem with American energy supplies today where we have to rely on virtually 8 percent of our oil imports from the terrorist government of Libya, and if you all could assure me that quick completion of this waiver package would offer, and completion of the pipeline would in any way enhance our ability, to get away from the Libyan dictator Qadhafi, I would be more than inclined to support that.

Can you give me some estimation of what amount of energy we are going to be replacing? For example, taking the 8 percent of Libyan oil, what is this going to do for us to replace this?

Mr. EWING. Yes, sir, it is estimated that the initial flow of 2 billion cubic feet a day equates to 400,000 barrels a day of oil that would not have to be imported, or vice versa.

If we don't build it, we would have to import that much more, but I cannot give you any assurance that the passage of the waiver package would insure that we are going to be able to finance this line and build it. Without it, we have no chance at all.

Mr. STATON. Even with the waiver package you are still reluctant to say that you can build the pipeline?

Mr. EWING. It is really out of our hands. It is up to the financial community. This is such a large project that it really requires funds not only domestically, but foreign, to be able to raise the kind of debt we are talking about.

Mr. CROOM. I think our economics would say that the life of this project should tend to reduce oil imports. We project the net cost will be lower than any projections we have seen on oil imports.

Mr. STATON. I wish you were a lot firmer on that. I wish you would jump in there and say absolutely we could get rid of Libyan oil if we could build this. I think most of us would feel a lot more comfortable with that.

I yield to Mr. Brown.

Mr. BROWN. I want to put in context more clearly what I was trying to ask in questions when Mr. Weaver complimented me. He felt good about it, but I didn't.

The oil company and pipeline equity under this new waiver arrangement is not guaranteed. No rate of return on equity is guaranteed. But the debt of the pipelines to the bankers is guaranteed, and the interest to the bankers on the debt is guaranteed and the guarantors in both cases are the consumers, the customers, who get no equity and, as far as I can tell, no deal for this except the possibility that they may get a pipeline.

If the Federal Government were to pick up responsibility for the completion of the pipeline, then equity and return on equity may or may not be guaranteed. You may or may not be able to cover your equity, but the customers don't get any guarantees. They don't necessarily get the gas. They don't necessarily get a pipeline. They will get to pay the cost of the pipeline as either customers or taxpayers, except for the equity put up by the pipelines and oil companies, and they may in fact get to pay for that if the project isn't completed. But I can't see where the customers get as a business deal any improvement in their status by the waiver.

Could any of you explain to me how the customers benefit by the waiver?

Mr. LEPAPE. Congressman Brown, with respect to the question that you stated earlier about the consumers assuming the debt responsibility, we, the pipeline and the other producers that would have equity ownership in the line, we are the ones that are on the hook for the equity and the debt until one of the major segments of the pipeline is completed.

Mr. Brown. But you transfer that on to the customers, right?

Mr. Lepape. Not before. The highest risk of noncompletion is on the investors. If this project is not completed, that is not going to be something that is suddenly going to occur in the third year, in my opinion, of construction.

We are starting on this project to build the most-difficult parts early. If the unthinkable happens, it is going to happen during that early period, and the people at risk are going to be the equity owners until we get a major segment of this pipeline completed. If before then we found out our original proposal was unsuccessful, with total nonrecourse debt, we would have to relook at this whole situation.

Sure, there are greater risks that are going to have to be assumed, but by both the equity owners and the customers. In my opinion, the far greater portion of that added risk, the equity owners are being asked to support.

This gets back to Mr. Croom's statement about the contingency of the customers supporting the debt once you get past that completion date and completion of a major portion.

Mr. Brown. Unfortunately, my time is up, but I am going to get back to Mr. Croom's statement, if I can, in a minute. I still want to ask another question later, if I can.

Mr. Sharp. The time of the gentleman has expired. The gentleman from Oregon, Mr. Weaver, is recognized for 2 minutes.

Mr. Weaver. Thank you very much. I still think Mr. Brown and Mr. Swift have been asking excellent questions. I want to say the $40 to $90 billion you say the customers get, if the gas is not delivered, they don't get that benefit.

But Mr. Swift said they are still at risk. The customers are putting up their money whether you get the gas or not, so you can't answer the question with the $40 or $90 billion because that is only if the gas is delivered.

So you are asking the customer to risk without guaranteeing him—let's have an amendment in this bill that the customer can be at risk only at the point the gas is delivered.

Is that satisfactory to everybody?

Mr. Ewing. I understand that the waiver package cannot be amended, Mr. Congressman.

Mr. Weaver. Then the risks are twofold. They are not really in the construction. I think you are going to be able to build it. The risks are in the cost of the construction. It may be twice what you think or three times. And the banks are going to be bankrupt and so are you and the customers at risk, and everything fails.

Besides, you said you are worried about foreign oil. We had testimony from the pipeline people themselves yesterday that said it was going to be $17 a thousand cubic feet.

That is $90 a barrel for oil. My God in Heaven, $90 a barrel for oil. You are going to smile at this, but I think in 7 years, oil is going to be about $15 a barrel because I think we are going into a depression.

A depression that is going to curl your hair in the words of President Eisenhower's Secretary of the Treasury, Mr. Humphrey, who was also in your business.

But anyway, I couldn't—I don't feel your resolution of the problem is satisfactory, but I appreciate it very much.

Mr. Sharp. The gentleman from Washington, Mr. Swift, is recognized for 2 minutes.

Mr. Swift. Thank you, Mr. Chairman. I want you to know that my good friend and colleague from Louisiana is working as hard up here with the microphone off as he was with the microphone on. He may yet be successful.

The one point we haven't resolved between ourselves is that while the consumer may, in fact, be assuming risk in a normal marketplace situation, what we are being asked to do here is to institutionalize that risk by Government, which is, it seems to me, something slightly different.

I would rather ask another question, however, also, following up on the concern of yesterday. In the last two pages of your prepared statement, you refer to the uncertainty of availability of financing even if the waiver package is approved.

If this package is not sufficient, should we expect you to be back here in a few months requesting Government guarantees or financing, or if the financing isn't there, will you just fold the project? What is the result if your concern about the availability of financing should prove valid and it not be there?

Mr. Roff. Congressman, I certainly am glad that you asked that question again, because I think I responded to Mr. Synar that I would under no circumstances ever be back. I want to withdraw that answer and I want to adopt Mr. Ewing's answer.

Mr. Swift. Did you float it down the table to somebody else?

Mr. Roff. Why don't you give your answer again. That is the answer I want to adopt.

Mr. Swift. I think I have a net loss here. I didn't get an answer, and I took away one from Mr. Snyar.

Mr. Ewing. Mr. Congressman, I don't know if this project can be financed even with the waiver package in place. We are very hopeful. We will make every attempt to try and put this together on a privately financed basis.

But we think this project is so important that if it takes coming back hat in hand and saying we just can't do it, we need something different, whatever that may be, we think we will come back and be trying to make this project go.

Mr. Swift. I appreciate your candor, and I think I would like to respond just very briefly by saying that I don't think that you gentlemen are in any way wrong for being here asking for these waivers.

Way back when this all started, everybody's crystal ball was cloudy. We probably should have had a better crystal ball, all of us, in making the decision to get going, should perhaps have foreseen this.

Now we all find ourselves in the middle of the river and we don't know whether to go back to that side or forge ahead. But I think it is—I really appreciate your candor saying there is a possibility when we make this decision that we might be seeing you again.

We all have to take that into consideration. That alone would not determine my vote on this waiver package, but it is important to have that on the record.

And I thank you very much.

Mr. **Ewing**. Thank you, sir.

Mr. **Sharp**. Gentlemen, let me ask you one further question. We have two additional panels this afternoon. While we could profitably spend time with you people, I am afraid we must move on.

But if I understand correctly, the letter from the bankers to the sponsors in August raised the question of putting the assets and collateral of the firms behind some of the debt.

So the question that I have for you is, should we not complete portions of this pipeline, or we never get to the completion date, is more than just your equity at risk that you are putting into this project?

Are you going to be putting up the assets of your corporations? In other words, the lenders will be using that for collateral.

Mr. **Roff**. The answer to that is yes. We will have more than equity at risk at that stage until the major sections are complete as described in the waiver package.

Mr. **Sharp**. How much would that represent in terms of your firms? Can you give me a percentage of how much of your assets are at risk?

Mr. **Roff**. I don't have a specific percentage for our company, in our level of participation based upon the amount of gas we have in the system.

It would be very significant, but it would not be of bankrupting magnitude.

Mr. **Sharp**. Can you kind of give me a range, whether we are talking about 5 or 75 percent?

Mr. **Roff**. It would be about, in our case, equal to one year's construction program for our company.

Mr. **Sharp**. Well, I guess I don't understand your business well enough to know what a 1-year's construction schedule would be.

Can you give us in the range what I was asking in terms of your assets, or is that not a good way to ask the question?

Mr. **Ewing**. Mr. Chairman, I don't know if this is—it is back of the envelope, but it would appear to me that that might be as much as 20 percent of our gas business assets. And really, if we had some way for someone to build a pipeline and deliver it to us, we would be just happy not to invest in this.

But we feel like we need to invest in it. We think the project is important and we are part of the team.

Mr. **Sharp**. This is, should it not be built, a significant financial risk. Should it not be completed or partial segments never completed, then it becomes a major financial risk for you, I assume.

Mr. **Ewing**. Yes, sir.

Mr. **Sharp**. Mr. Croom.

Mr. **Croom**. Same for us. Our estimate is that we would have the equivalent of about 19 percent of our 1980 net property value at risk. Just on the equity portion, given the costs that it would represent nearing time of completion.

So we are talking about 19 percent just on our equity side.

Mr. **Sharp**. I would be happy to yield to the gentleman.

Mr. BROWN. But 19 percent of what, your division of the company?

Mr. CROOM. Our net worth.

Mr. BROWN. The Columbia Transmission System or whole Columbia Gas empire?

Mr. CROOM. That would be of the system's net, December 1980.

Mr. BROWN. What system?

Mr. CROOM. Columbia Gas system.

Mr. BROWN. The transmission system or transmission and distribution system?

Mr. CROOM. The entire system.

Mr. RAASCH. For Internorth, it would be, the debt assumption would be about 20 percent. The total project would be something higher than that of Internorth's assets.

Mr. SHARP. Would Panhandle Eastern respond to that?

Mr. KALEN. With Panhandle Eastern, our pipeline business, approximately 15 percent, I would say.

Mr. SWIFT. If there are no further questions——

Mr. BROWN. There is one other question. I want to pursue a question with Mr. Croom. I want to quote, Mr. Croom, from the last part of your testimony where you say, assuming continuation of the Natural Gas Policy Act, meaning price controls, the expected delivered cost of Alaskan gas is averaged with other committed lower priced volumes, will result in net gas cost to Columbia's residential, commercial and industrial customers below that of distillate oil, the principal alternate fuel for most of Columbia's high-priority industrial loads.

As I understand the Columbia system, at least in my area of the country, is now paying something like $10 or $11 a thousand cubic feet for deep gas.

And the reason that you can do that is that you can average it in with the price-controlled gas that you now have in your system as a result of the Natural Gas Policy Act and gas purchased prior to its existence.

I am fascinated by the economics of that. When, as I understand, there are lesser supplies of gas than are supplied by the deep gas at much lower prices, but they are not being purchased by Columbia. Could you sort of in a thumbnail response explain that economic anomaly to me?

Mr. CROOM. The price figures you refer to are a little high, but I will accept $8 to $9, in that range.

Mr. BROWN. You have never paid $11 for gas?

Mr. CROOM. I am not aware of any that high, but I will accept your figure for the moment. We are talking about are buying reserves in place for deliverability in future years.

What we are talking about here is what available gas would there be as a substitute for Alaskan gas during 1987 and beyond.

We are talking about gas even under phased deregulation that would be commanding whatever the market clearing price would be in the United States.

We do not see any new gas being developed in the 1987 and beyond period that would be less expensive than this Alaskan gas.

Mr. BROWN. There is no economist I know of that thinks that the average price of gas after the decontrol of gas prices will be $11. Are you telling me that you think it will be $11 or $8 or $9?

Mr. CROOM. Our studies have shown for about the first 2 or 3 years Alaskan gas is flowing, on an incremental basis, it would tend to be higher than some other increments in our system. Once we cross over that, Alaskan gas is going to steadily decline in price.

Its real value over the life of this project is decidedly less than any alternate we see in the lower 48 States.

Mr. BROWN. Are you selling any gas out of your system at this time?

Mr. CROOM. No, we have made application to sell some off the system, but it has not been approved.

Mr. BROWN. At what price?

Mr. CROOM. It would be at 102 price plus some markup. Ten percent, I believe. I am not certain.

Mr. BROWN. At what price again?

Mr. CROOM. That would be the section 102 price.

Mr. BROWN. What is that?

Mr. CROOM. Under NGPA, I believe at the present time that is around $2.70, something like that.

Mr. BROWN. You are buying at 8 or 9 and 10 and selling at $2.70?

Mr. CROOM. We are talking about buying gas for future deliveries—reserves delivered over a 15-year period.

Mr. BROWN. And not buying gas that is available near the pipeline——

Mr. CROOM. That's correct.

Mr. BROWN. At $2 or $3, I think, isn't that right?

Mr. CROOM. The application we made before the FERC was premised on the availability of gas in excess of any take-or-pay situation.

It would be to the consumer's benefit for us to have made these, rather than incur a take-or-pay provision.

Mr. BROWN. And I assume to your benefit to keep the price controls on gas as long as possible?

Mr. CROOM. We would have realized no dollars on our system from such transactions. It would have flowed through to the consumer.

The net lowered gas cost for the consumer is the reason to have made this off-system sale.

Mr. BROWN. I would be happy to have any rationale you have for this in written form because in the brief time we have, 2 minutes, it is very difficult for me to grasp that arrangement.

But then, I usually don't think in terms as large as you must think of in your system.

[The following response was received:]

COLUMBIA ALASKAN
Gas Transmission

John H. Croom
President

October 29, 1981

The Honorable Clarence Brown
United States House of Representatives
Washington, DC 20510

Dear Congressman Brown:

This letter responds in detail to the questions which you asked me at the recent Committee hearings on the Alaskan Natural Gas Pipeline concerning why Columbia Gas Transmission Corporation (Columbia) proposes to make "off-system sales" at prices below those which it has paid for deep gas.

Columbia presently has five proposed off-system sales pending consideration before the FERC. Two of these sales were in effect for a short period pursuant to the FERC's emergency regulations. All are scheduled to terminate by 1982, or four years before Alaskan gas begins to flow. The price for four of the five sales is the higher of the NGPA Section 102 price or Columbia's SR interruptible rate for 100% load-factor sales to its existing customers in the appropriate zone of delivery at the time of purchase. Columbia's SR rate for November, 1981 will range between $3.30 and $3.36 per dekatherm. The price for the fifth sale is the higher of the NGPA Section 102 price or Columbia's average purchase price from producers outside the Appalachian area, including tax, gathering and other adjustments, which is estimated to be $2.98 per Mcf in November, 1981. All of the proposed off-system sales are on a strictly "best efforts" basis, and will not be made if Columbia needs its available supplies to meet its existing customers' requirements. Moreover, revenues generated from these sales will be credited to reduce the rates to Columbia's existing customers.

Columbia's need to make these proposed off-system sales stems from its present surplus of gas supplies. Despite this present surplus, Columbia will need to procure additional supplies from presently uncommitted sources to meet the projected demands of its customers. If Columbia is to avoid the curtailments experienced during the 1970's as well as provide gas service for new consumers, it must be engaged at all times in a vigorous gas acquisition program. The need to provide for flowing gas supplies for future years often can lead to near-term surpluses. Gas supply projects of the size necessary for Columbia to obtain the

Columbia Alaskan Gas Transmission Corporation, 20 Montchanin Road, Wilmington, Delaware 19807

additional supplies needed in future years are not "off-the-shelf items" but must be planned and committed for years before the date of actual need.

Prior to the curtailment era, short-term surpluses were commonplace but were easily manageable within take-or-pay and other limitations of Columbia's contractual gas purchase obligations. However, the magnitude of Columbia's present surplus situation has been increased due to a number of factors. First, Columbia has traditionally relied upon the demand projections of its customers in estimating their market requirements. Historically, these projections have been quite accurate. However, these demand projections during the initial period of transition from curtailment to market growth have been apparently overly optimistic, probably due to the fact that Columbia's wholesale customers did not anticipate the extent of conservation and fuel switching by their consumers. In addition, the extent of the current economic recession could not have been anticipated, and it has caused a substantial reduction in gas sales, particularly to industrial consumers.

Another factor behind the current gas surplus is the fact that Columbia's five nonaffiliated pipeline suppliers, which provide Columbia with approximately half of its gas supply, have been making available much larger volumes of gas than they had recently projected. This is because conservation, fuel switching, and the economic recession have also reduced the other markets of these pipeline suppliers, thus permitting some of the gas originally destined for such other markets to be reoffered to Columbia within existing contractual limits. In other words, our pipeline suppliers are experiencing the same market phenomena as Columbia.

A final factor increasing Columbia's surplus situation is that sellers of gas insist upon high take-or-pay provisions in gas sales contracts in order to establish minimum delivery levels and adequate revenue and cash flow. In most areas of the country, Columbia must be willing to agree to take-or-pay levels ranging from 85% to 90% in order to compete for new gas supplies.

In managing flowing gas supplies, there are certain basic limitations which must be observed. Once the gas is under contract and begins to flow, it must either go to market, go into storage, or the levels of deliveries must be reduced within the parameters established by operating constraints and take-or-pay levels. Addressing these options in reverse order, Columbia has been forced to institute an extensive program of cutbacks from its pipeline and producer suppliers during the past two summers. It has also injected the maximum feasible amount of gas into storage, and it is increasing its storage inventory, particularly through the development of the Crawford Storage Field in Ohio, which will be Columbia's largest storage facility. However, these actions have been insufficient to enable

Columbia to avoid any exposure to take-or-pay liability under its existing contracts. With its traditional markets currently in a depressed state, Columbia must look to additional markets for its gas in the short term in order to bring its present and near term supply and demand into better balance.

Columbia fully recognizes that its proposed prices for off-system sales are below the highest prices which it is paying for gas under Section 107 of the Natural Gas Policy Act. However, if Columbia offered to make off-system sales on this incremental basis, it could not find anyone willing to purchase such gas. Columbia's situation is far from unique in the industry. A number of other pipelines have proposed to make off-system sales on an average rather than an incremental basis. Indeed, a proposed sale by Columbia to Consolidated Edison of New York Company, Inc. at its SR rate was later withdrawn, and ConEd is purchasing off-system gas from other suppliers at lower delivered rates. Moreover, the FERC has approved the average or rolled-in pricing concept as consistent with the public interest in connection with its approval of a number of off-system sales by other pipelines. For example, in *Natural Gas Pipeline Company of America*, Docket Nos. CP81-302-000, *et al.*, order issued August 12, 1981, it stated:

> "With regard to the off-system sales proposed here, the sales prices proposed by Natural are significantly less than the price of the Canadian and Section 107 gas which Natural purchases. Because Natural sales to Dow, Faustina, and United do not recover the cost of its highest priced supplies, the sales may cause a corresponding increase in the average cost of purchase gas paid by Natural's on-system customers. However, our examination of the record indicates that the transaction as a whole will provide sufficient benefits to Natural's existing customers which outweigh this effect.... In addition to mitigating Natural's exposure to take-or-pay obligations, the Commission believes that the proposed sale will permit Natural to be able to continue to attract new long-term gas supply necessary to meet its overall customer needs." (p. 9) (footnote omitted).

The Commission has also approved the average or rolled-in pricing concept (generally at the pipeline's excess or interruptible rate) for off-system sales by a number of other pipelines. *Consolidated Gas Supply Corp.*, Docket No. CP81-88, order issued August 19, 1981; *East Tennessee Natural Gas Co.*, Docket Nos. CP81-219, et al., order issued August 12, 1981; *Colorado Interstate Gas Co.*, Docket No. CP81-174, order issued August 11, 1981; *Northern Natural Gas Co.*, Docket No. CP81-236, order issued July 31, 1981.

Columbia would naturally like to charge higher prices for off-system sales. However, the marketplace for such sales simply will not absorb prices higher than those proposed by Columbia. Nevertheless, Columbia believes that the off-system sales at the prices proposed are part of a prudent gas supply management program and are in the best interests of its wholesale customers, their consumers and the public in general. Such off-system sales will not only enable Columbia to aggressively pursue gas supplies necessary to meet the long-term demands of its customers, but will also stimulate natural gas production by continuing to assure market outlets and sufficient cash flow for Columbia's suppliers over the near term.

I greatly appreciated being able to testify before your Committee. If you have any further questions concerning Columbia's proposed off-system sales or any other matters raised by my testimony, I will be happy to respond to them.

Sincerely,

John H. Croom

cc: The Honorable Morris K. Udall, Chairman,
Committee on Interior and Insular Affairs
The Honorable Philip R. Sharp, Chairman,
Subcommittee on Fossil and Synthetic Fuels
Committee on Energy and Commerce
Mr. Donald A. Watt, Printing Editor

Mr. Swift. The time of the gentleman has expired.

Mr. Dannemeyer.

Mr. **Dannemeyer**. Thank you, Mr. Chairman. It isn't often we have an opportunity to hear from all these very able pipeline builders and operators.

Just as a matter of idle curiosity, I have been reading in the press that the Soviets and West Germans are in the process of perhaps making a deal to build a pipeline from Siberia to West Germany.

Are any of you able to compare the size of that project in terms of cost and production of gas to what we are talking about here and how they go about financing their project?

You have two competing systems building a pipeline of considerable magnitude about the same time or thereabouts.

I am just curious as a student of history how they are going about it differs from the way we are trying to go about it.

Mr. **Ewing**. I will take a crack at it. The size of the two projects are probably similar. I have not compared the dollars or length of the lines. But the Soviets are demanding that the users, the countries, finance the lines essentially.

The Germans will be furnishing pipe, the turbines and other equipment to be financed by the users.

I am sure the Soviets will have to put up the manpower, at least in the Soviet Union, because they don't want any of the user companies to bring people in.

But basically, they are looking to the users to finance it. And this is really a government-to-government transaction, as I understand it.

Mr. **Dannemeyer**. Thank you.

Mr. **Roff**. Congressman, there were press reports at least at an earlier time, several months ago. The Soviets were requiring that the purchasing countries provide them with 7-percent financing money. Of course, the financial markets were not—they were perhaps slightly lower than they are today but not much. This was a great discount off of the marketplace financing.

How that finally sorted out and whether it has been completely agreed, I haven't seen. But there were those reports a few months ago.

Mr. **Dannemeyer**. How does is the price of the gas from that pipeline in Europe compare costwise with what gas we expect to get out of the end of this pipeline?

Mr. **Swift**. The time of the gentleman has expired. If you have information in response to the gentleman's question, we will leave the record open.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. **Swift**. Thank you, members of the panel. We appreciate your assisting the committee in this way.

We will call the second panel of Alaska Gas Producer Project Participants, including Mr. S. J. Reso of Exxon, Mr. William D. Leake, of Arco, and Mr. Frank Mosier of Sohio.

While the panel is changing places, the Chair would note that the hour is late. We would very much appreciate the witnesses holding their prepared testimony to 5 minutes.

We will, however, include in the record their prepared statements in full.

The Chair would ask for order in the room so that we can proceed.

Mr. Reso, we would be happy to take your testimony, if everyone in the room, those leaving and moving around, will do so as quietly as possible.

Mr. Reso.

STATEMENTS OF S. J. RESO, SENIOR VICE PRESIDENT, EXXON CO., U.S.A.; WILLIAM D. LEAKE, VICE PRESIDENT, ALASKA NATURAL GAS TRANSPORTATION SYSTEM PROJECT, ATLANTIC RICHFIELD CO.; AND FRANK E. MOSIER, SENIOR VICE PRESIDENT, STANDARD OIL OF OHIO

Mr. Reso. Thank you, Mr. Swift, I am Sid Reso, senior vice president of Exxon, U.S.A., here to testify concerning the project for Alaskan gas.

We believe a transportation system for Alaska natural gas is in the national interest, because it will allow the Nation to use the large reserves of gas at Prudhoe Bay.

The project will also provide a potential outlet for other reserves outside of Prudhoe Bay. As indicated by some of the prior discussion, there is significant reserve potential for additional gas in Alaska. Department of the Interior has estimated these reserves could be upward of 200 trillion cubic feet of additional gas. Once that transmission system is built, of course, it will encourage exploration for and the risking of funds to try to find such additional gas.

Two years ago, the Secretary of Energy urged the principal Prudhoe Bay producers to propose terms under which we would provide financial support for the Alaska segment of the transmission system.

At first, Exxon was reluctant to become involved in the Alaska gas pipeline project. We were not engaged then and are not now engaged in the interstate gas business.

We were not inclined to commit our funds to this highly regulated business. We also were barred by law from participating in the project.

Providing indirect help through loan guarantees or something like that was far afield from our normal lines of endeavor and, of course, would not be in the interest of our shareholders.

However, at the urging of the Secretary and after negotiations with the pipelines and Department of Energy, Exxon joined with Arco, Sohio and the pipeline sponsors in June of 1980 in a cooperative agreement.

We agreed to participate in the design and engineering phase of the project to try to achieve a good, sound cost and schedule estimate.

By the end of this year, the producers and pipelines will have spent $400 million in this design and engineering phase alone and Exxon will have spent about $70 million of that.

As a result of that, all the participants are more confident now that the cost estimates are reliable.

Under the terms and conditions of the financial plan currently being considered, Exxon has agreed to be responsible for its share of 30 percent of the project equity and debt allocated to the producers.

We have agreed to pay or to support our share of that 30 percent, which comes to about 11 percent. We own about 38 percent of the Prudhoe Bay gas as produced. Under this scheme, Exxon could be responsible for about $3.4 billion.

We don't know whether the project can be financed even with producer participation. We leave that assessment to the financial community which will be asked to provide the necessary funds.

While I don't know what the final answer will be from those institutions, I can tell you that Exxon is prepared to support its share of this project on the basis outlined in the statement I have submitted and you have before you.

Exxon believes the Alaska gas transportation system should be constructed. We are prepared under appropriate conditions to invest in the system.

We have already invested a lot of time and money over the last two decades in Alaska. We think it is and will continue to grow as a good reliable source of energy for the lower 48 States, as well as for Alaska itself.

I would hold my comments there and be prepared to answer your questions later.

[The statement of S. J. Reso follows:]

STATEMENT OF S.J. RESO,
SENIOR VICE PRESIDENT, EXXON COMPANY, U.S.A., BEFORE THE SUBCOMMITTEE ON FOSSIL AND SYNTHETIC FUELS OF THE COMMITTEE ON ENERGY AND COMMERCE AND THE SUBCOMMITTEE ON ENERGY AND ENVIRONMENT OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS, UNITED STATES HOUSE OF REPRESENTATIVES
OCTOBER 22, 1981

On behalf of Exxon, I am here today to testify concerning the project to contruct and operate a system for transporting Alaska natural gas to the 48 contiguous United States.

PROJECT IN NATIONAL INTEREST

A transportation system for Alaska gas is in the national interest, first of all, to permit utilization of the large known gas reserves at Prudhoe Bay. The project will also provide a basic system which can be used or expanded to transport other gas that may become available on the North Slope or the interior of Alaska. In this way, the Alaska gas transpotation system should serve to encourage further exploration for natural gas in Alaska.

BACKGROUND FOLLOWING 1977 DECISION

On November 2, 1977, Congress approved a Presidential Decision designating the Alcan Project as the approved Alaska gas transportation system. That decision prohibited producers of Alaska gas from participating in the ownership of the transportation system. Two years ago, however, the Secretary of Energy invited the principal Prudhoe Bay producers to his office and at the meeting urged them to propose terms, under which they could provide financial support for the Alaska segment of the transportation system.

Exxon was reluctant to become involved in the Alaska gas pipeline project for several reasons. Exxon was not engaged then and is not now engaged in the interstate gas transmission business and not inclined to commit funds to a new venture in that highly regulated business. We were barred by law from owning equity in the project. Providing indirect financial support, such as loan guarantees, would have been far afield from our normal lines of endeavor and not in our shareholders' interest.

At the urging of the Secretary and after negotiations involving the Department of Energy, the Justice Department, and the Alaskan Northwest group of pipelines sponsoring the project, we joined with Arco, Sohio, and the pipeline sponsors in an agreement (the Cooperative Agreement) to participate in the design and engineering phase of the project to achieve a reliable cost estimate for the Alaska gas pipeline and conditioning plant. The Cooperative Agreement was signed in June, 1980, and since then the producers have contributed 50 percent of the money spent over the life of the project for design and engineering of the Alaska segment. By the end of this year, the producers and pipelines will have spent almost $400 million on the design and engineering phase. Exxon alone will have spent more than $70 million in this effort. As a result, all of the participants are more confident now that the cost estimate for the project is reliable.

FINANCING

Producer Support

Also in June of 1980, at the urging of the Secretary of Energy, the Prudhoe Bay producers agreed to work with the pipeline sponsors to develop the sponsors' financing plan. In January of this year, Arco, Exxon and Sohio advised the project sponsors that each of the producers was prepared to support a modification of the sponsors' financing plan for the purpose of approaching the financial community, which would be asked to commit funds. Under the modified plan, each producer would have provided its share of 30 percent of the equity in the project and be responsible for arranging for its share of 30 percent of project debt based upon a project cost not exceeding $30 billion. The financing plan as modified covered all project facilities, including the conditioning plant, pipeline and compression and refrigeration stations in Alaska. The plan incorporated an essential concept, that each equity owner take responsibility for arranging for a share of project debt equal to its share of equity. The plan also included important conditions which are required for Exxon's participation in the project in any event; such conditions are: All funds for the project must be committed before start of construction; each participant's investment commitment must be limited and defined from the outset; the financing to be arranged by each participant must be accorded equal terms and conditions; there must be assurance that the Canadian segment will be financed and completed without our involvement; all necessary government actions must be taken; and finally, the whole project must be economically viable.

Exxon's Support at Maximum

We have advised the Alaskan Northwest pipeline group that Exxon will not commit to support or arrange for more than its share of the 30 percent of project equity and debt allocated under the plan to Prudhoe Bay producers. That is Exxon could be responsible under the plan for about 11 percent of $30 billion (maximum) for the Alaska segment. This could require our company being responsible for providing or arranging for up to $3.4 billion pro-rata with funds brought to the project by the sponsors and the other producers. We believe that is a significant commitment to the project.

Financing Uncertain

We do not know whether the project can be financed even with producer participation. We leave the assessment of this issue to the financial community. They are in the process of evaluating the sponsors' plan and the ability of the participants to support their respective commitments. While I do not know what the final answer will be from the financial institutions regarding the private financing of the project, I can tell you that Exxon is prepared to support its share of the project on the basis I have outlined.

Waiver Proposal

You have before you, now, a proposal by the President for a waiver of law to facilitate implementation of the sponsors' financing plans. I will comment on the two parts of the waiver request which concern producer ownership participation and the conditioning plant.

PRODUCERS' EQUITY PARICIPATION

The President's *Decision* in 1977 prohibited producers of Alaska natural gas from participating in the ownership of the ANGTS. As mentioned before, if the project can be privately financed, Exxon is willing to invest in the project on the basis I outlined earlier, provided that the funds we invest receive equal treatment with funds invested by others and provided we have a voice in project management commensurate with our investment. The impediment to our investing in the project on such a basis is the prohibition in the *Decision* against such investment; therefore, waiver of the prohibition is necessary.

CONDITIONING PLANT IN SYSTEM

The 1977 *Decision* did not include in the system description the plant which will be required at Prudhoe Bay to condition gas for transportation. The conditioning plant is required because of the design of the transportation system. To reduce pipeline construction costs, the pipeline will be buried underground and therefore the gas must be refrigerated to prevent thawing of the permafrost. To allow transportation of refrigerated gas, certain liquefiable hydrocarbons must be removed from the gas. Prudhoe Bay gas contains about 12 percent carbon dioxide, an inert gas. The carbon dioxide content does not prevent the use or the transportation of the gas, as is evident from the use at Prudhoe Bay and along the oil pipeline of more than 100 million cubic feet of gas per day for the last four years; but it would be costly to transport so much carbon dioxide through the transportation system. Accordingly, the conditioning plant will remove carbon dioxide from the gas. The plant will refrigerate the gas, and to power the pipeline, the conditioning plant will compress the gas to about 1,260 pounds per spare inch. All of these plant functions are necessary only because of the pipeline design. Also, there will be seven stations along the pipeline in Alaska to compress and refrigerate the gas. The conditioning plant and seven on-line substations will be an integral part of the transportation system. Construction of the plant as designed would be undertaken only in conjunction with construction of the rest of the pipeline system; the two segments are interdependent. The 1977 Decision of the approved transportation system excludes the conditioning plant. Waiver of that description is necessary to include the plant in the approved transportation system and in the final certificate for the system.

Conclusion

Exxon believes that the Alaska gas transportation system should be constructed and is prepared under the appropriate conditions to invest in that system. We have already invested our time, effort and money in Alaska over a period of two decades, and we are confident that Alaska will be a source of additional natural gas reserves for the nation over many years to come.

Mr. SWIFT. Thank you very, very much. We now call upon William Leake for your statement.

STATEMENT OF WILLIAM D. LEAKE

Mr. LEAKE. Mr. Swift, thank you. I am William Leake, vice president of Atlantic Richfield Co. currently assigned to the Alaska Natural Gas Transportation System. Copies of my statement have been furnished to the subcommittee.

I would like to discuss the circumstances that brought about our involvement in this project and to highlight the importance of the proposed waivers to Atlantic Richfield.

We were an early advocate of the construction of a gas transportation facility to permit gas sales from the Prudhoe Bay field and participate actively in the proceedings before the FERC which culminated in the 1977 decision report to Congress which determined that the system should be constructed along the Alcan Highway and selected Northwest Pipeline Co. to construct and operate the system.

In 1977, Atlantic Richfield appeared before the Congress in support of the prompt construction of the Alaska transportation facility. At that time, we were somewhat distressed at President Carter's determination that:

> Aforesaid producers of Alaska gas may not be equity members of the sponsoring consortium, have any voting power in the project, have any role in the management or operation of the project, have any continuing financial obligation and relation to debt guarantees associated with initial project financing after the project is completed and tariffs put into effect, or impose conditions on the guarantees of project debt permitted above which may give rise to competitive abuses including power to veto procompetitive policies.

Our distress was not occasioned by any desire for equity participation for we did not wish to enter gas transmission then nor do we now, but rather, by the implication that producers were somehow obligated to guarantee the debts of the projects sponsors and a deep concern that the Department of Justice's theorizing might result in failure of northwest Alaska financing plans.

We informed the Congress in 1977 that we would not be able to commit assets particularly when we had no equity participation. In August 1979, the Secretary of Energy, James Schlesinger, informed Atlantic Richfield and other Prudhoe Bay producers that the system could not be privately financed without their participation and urged the producers to propose plans for participation.

In response to the Secretary's request, February 28, 1980, Atlantic Richfield informed the Secretary of Energy, Charles Duncan, that it was willing to discuss possible financing plans on the basis of producer equity participation and inclusion of the conditioning facilities in the transportation system, and tariff and other considerations, including a reliable cost estimate.

Thereafter, in response to further requests from the Department of Energy and others, Atlantic Richfield and the other producers and pipeline sponsors entered into a design and engineering agreement to share the cost of developing a reliable pipeline design and cost estimate for the Alaska portion of the transportation system, including the gas-conditioning plant.

As a result of this agreement, we will have spent about $70 million by the end of this year on engineering and design and cost estimate in this project. Contemporaneously with the execution of this agreement, we entered into a joint statement of intention calling for development of the financing plan involving producer participation.

On May 21 of this year, the pipeline sponsors and other producers agreed upon the outline of the financing plan whereby the producers would provide the lesser of either 30 percent of the expected cost of the Alaska segment of the pipeline and of the gas-conditioning plant, or up to a maximum of $9 billion provided that all the conditions precedent to participation in that or any subsequent financing plan were met.

For your information, these conditions are the conditioning plant would be included in ANGTS. Each company's investment would be limited to a sum certain. All debt and equity participants would issue acceptable firm commitments prior to construction.

All necessary Government approvals and authorizations would be issued and accepted. All parties would be assured the project was economically viable.

The Canadian segment would be financed and completed without U.S. company involvement. Each financing layer would be afforded equal terms and conditions. One of these conditions in particular merits explanation to you. I refer to the second requirement.

Each company's investment will be limited to a sum certain. Here we are not trying to avoid risk per se, only risk beyond our financial capability.

Indeed, we find considerable risk in the thought of investing a finite sum of several billions of dollars in this very costly system to send gas to a difficult-to-define future market in an economic outlook ill-defined as to inflation and cost of capital.

Rather, our concern is to reasonbly limit our stockholders' capital to outer viable limits.

Within those limits, we are concerned about the risks of overruns from unexpectedly high interest costs or inflation, about the risk of adverse political or economic events and about the risk of insufficient financial commitments from creditworthy parties to assure that the expected project cost and possible overruns will be fully funded.

We are equally concerned that wellhead or tariff revenue might be reduced to facilitate financing. We are trying to lessen our concerns by, one, elaborate early project engineering and costing and, two, adequate contingent financing up front and/or some form of completion insurance.

Your proceedings will consider many of the same conditions in these waiver hearings. We support your approval of the waivers because in our judgment, without their adoption, the project will be delayed or may fail.

They will remove some of the obstacles to ownership and construction and improve the chances of project financing by narrowing the field of negotiation and search for remaining solutions.

The billing commencement waiver addresses appropriately some of the risks associated with the project after its physical completion. However, even if the full waiver package is approved, satisfactory financial commitments among lenders and equity participants must be negotiated.

Until they are, we must remain uncertain as to whether or not the project can be privately financed. Utilization of the north Alaska gas appears to be in the Nation's interest, as well as ours.

The ANGTS project will be extremely expensive and difficult to finance. Our possible share of the cost is nearly twice as much as the highest annual net income ever reported by Atlantic Richfield. This project competes for funds with many other domestic energy imperatives available to us.

We have worked long and hard to solve the problems of bringing Alaskan gas to market. We will continue to do so.

Mr. Chairman, that concludes my statement. I would be happy to answer questions.

[Testimony resumes on p. 482.]

[The statement of William D. Leake follows:]

STATEMENT OF WILLIAM D. LEAKE, VICE PRESIDENT ALASKA NATURAL GAS TRANSPORTATION SYSTEM PROJECT, ATLANTIC RICHFIELD COMPANY, BEFORE THE FOSSIL AND SYNTHETIC FUEL SUBCOMMITTEE OF THE HOUSE ENERGY AND COMMERCE COMMITTEE AND THE ENERGY AND ENVIRONMENT SUBCOMMITTEE OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS, UNITED STATES HOUSE OF REPRESENTATIVES, OCTOBER 22, 1981

On behalf of Atlantic Richfield Company, I wish to express my appreciation for being afforded the opportunity to present my company's views regarding the Waivers of Law submitted by President Reagan to the Congress in accordance with the Alaska Natural Gas Transportation Act.

In 1968, Atlantic Richfield, operating for itself and Exxon Company, U.S.A., discovered near Prudhoe Bay, Alaska the largest single deposit of hydrocarbons ever encountered in the North American continent. It was later determined that the reservoir contained in excess of 9 billion barrels of recoverable oil and approximately 26 trillion cubic feet of natural gas reserves. Developement of this enormous field in North Alaska commenced almost immediately and in 1977, after completion of the Trans-Alaska Oil Pipeline, production of crude oil and natural gas commenced. Since that time, the Prudhoe Bay Field has produced approximately 2 billion barrels of crude oil and the field is currently producing approximately 1.5 million barrels per day, all of which has been consumed in Alaska or in the lower 48 states. At the present time, there is also being produced from the field approximately 2 billion cubic feet of gas per day. Approximately 120 million cubic feet per day of this gas is used as field fuel, approximately 30 million cubic feet per day is delivered to the Trans-Alaska Pipeline System to fuel the first 4 pump stations and the remainder is reinjected into the reservoir to aid in pressure maintenance and to be conserved until a gas transportation system is constructed.

Atlantic Richfield was an early advocate of the construction of a gas transportation facility to permit gas sales from the Prudhoe Bay Field. Our company participated in and contributed to feasibility studies of both the Trans-Alaskan and Arctic Gas transportation routes, and as will be detailed later in these comments, we have made a significant contribution in money and manpower to the ANGTS design effort.

In 1977, the President and the Congress determined that the Alaska Natural Gas Transportation System should be constructed along the Alcan Highway and selected Northwest Pipeline Company to construct and operate the system. Shortly thereafter, the Congress enacted the Natural Gas Policy Act of 1978 wherein, for the first time, they established a permanent ceiling price for Prudhoe Bay gas at $1.45 per million BTUs to be adjusted only by an amount equivalent to annual inflation.

Subsequent to the selection of the transportation route and the enactment of the pricing legislation, Atlantic Richfield negotiated Letters of Intent for the sale of its share of the Prudhoe gas production with six potential purchasers, Pacific Lighting Corp., Panhandle Eastern Pipeline Company, Texas Eastern Corporation, Texas Gas Transmission Company, United Gas Pipeline Company and Transwestern Pipeline Company. Definitive gas sales agreements have not been negotiated with all potential purchasers; however, we anticipate that these necessary negotiations will be completed prior to the certification of the Alaska Natural Gas Transportation System.

In his 1977 Decision and Report to the Congress on the Alaska Natural Gas Transportation System, the President stated that producers of significant amounts of Alaska gas, their subsidiaries and affiliates, should not participate in the ownership of the Alaska Natural Gas Transportation System except that the producers could provide guarantees for project debt prior to project completion only. In his report, the President stated, "The aforesaid producers of Alaska gas may not be equity members of the sponsoring consortium, have any voting power in the project, have any role in the management or operation of the project, have any continuing financial obligation in relation to debt guarantees associated with initial project financing after the project is completed and the tariff is put into effect, or impose conditions on the guarantees of project debt permitted above which may give rise to competitive abuses, including power to veto pro-competitive policies." (Decision, p.39) While Atlantic Richfield had no interest in owning an interest in or assisting in the financing of a gas pipeline system, we informed the Congress in 1977 that such limitations were unwarranted and unprecedented in any financial transaction that we have ever encountered and that it was our opinion that such limitations would severly discourage any prospective creditor or guarantor. In spite of the concerns of Atlantic Richfield and of others that were expressed to the Congress, the requirement of the President's Decision that producers be excluded from financial participation in the Alaska Natural Gas Transportation System was adopted.

In August 1979, Secretary of Energy James R. Schlesinger urged the principal gas producers in the Prudhoe Bay Field to propose plans for producer participation in the ownership and construction of the Alaska Natural Gas Transportation System. The Secretary informed the producers that, in his opinion, the pipeline system could not be privately financed without the participation of the major producers.

In response to the Secretary's request, Atlantic Richfield, on February 28, 1980, informed Secretary of Energy Charles W. Duncan, Jr. that it was willing to discuss possible financing plans with the pipeline sponsors but that it would not assume responsibility for guaranteeing the debts of any other participant nor could it assure or guarantee the completion of the project. Atlantic Richfield also informed Secretary Duncan that it could not participate in the project unless all conditions necessary to finance and construct an economically viable system were satisfied and that it was unwilling to provide more than its proportionate share of the debt of the pipeline project.

In its communications with Secretary Duncan, our Company summarized its concerns relating to the financeability of the transportation system, pointing out that the Company could not provide the guarantees referred to in the President's Decision without placing the Company in severe financial jeopardy. The Company went on to enumerate the points that it believed necessary to make the project financeable and economically viable. Among the more important points highlighted by the Company at that time were the following: (1) approval of producer equity participation, (2) assurances that the entire project, including the Canadian leg, was economically viable and would be completed, (3) inclusion of the conditioning facilities in the transportation system and tariff, (4) tariff protection for the lenders against permanent or temporary interruption of service, and (5) a reliable cost estimate. As we noted at that time, there were other considerations; however, the foregoing list was of such importance that it was considered necessary to place special emphasis on the items contained herein.

In June, 1980, in response to further requests from the Department of Energy, Atlantic Richfield negotiated with the other producers and the pipeline sponsors a Cooperative Agreement which enabled the producers and the sponsors to share the cost of developing a reliable pipeline design and cost estimate for the Alaska portion of the Transportation System, including the Gas Conditioning Plant. As a result of this Agreement, by the end of 1981 Atlantic Richfield will have contributed approximately $70 million toward the cost of the Design and Engineering study. The system cost estimate has now been delivered to the Federal Energy Regulatory Commission and is being reviewed by the Commission as a part of its certification process.

Concurrently, with the execution of the Cooperative Agreement, the pipeline sponsors and the producers signed a Joint Statement of Intention to Work together in an effort to develop a financing plan which could be presented to potential lenders and to the government to determine whether or not the project was viable. As a result of the efforts of the parties, on May 21, 1981, Atlantic Richfield, the pipeline sponsors and other producers agreed upon an outline of a financing plan and presented it to Secretary of Energy James Edwards. Included among the concepts set forth in the plan was an agreement by the Prudhoe gas producers and pipeline sponsors whereby the producers would be permitted to own 30% of the Alaska portion of the transportation system including the conditioning plant by providing equity in the amount of $2.25 billion and arranging debt contribution up to $6.75 billion. Atlantic Richfield's agreement upon these financing concepts was conditioned upon the following circumstances:

(1) The conditioning plant to be located on the North Slope of Alaska would be included as an integral part of the Alaska portion of the ANGTS.

(2) The debt/equity ratio for all capital investments in the system would be 75:25.

(3) The investment limits for all participating companies would be defined at the outset of the financing effort. As a group, the producer companies would provide equity in an amount not to exceed $2.25 billion.

(4) Debt funds (pipeline and plant) would be sought on a project credit basis. The transmission group would be responsible for arranging $15.75 billion in project debt and the producer group would accept responsibility for arranging $6.75 billion in additional project debt. Producer debt would be accorded terms and conditions equivalent to the terms and conditions accorded other project debt. All financing layers would be guaranteed equal terms and conditions.

(5) Each company's investment would be limited to a sum certain defined in the financing plan.

(6) The Alaska Northwest partners would own 70% of the pipeline and the plant and the producing companies would own 30% of the pipeline and the plant. Equity commitments to the completion assurance pool would be on a 70:30 ratio.

(7) All debt and equity participants would issue firm commitments, acceptable to all participants, prior to commencement of construction of the pipeline or plant.

(8) All necessary governmental approvals and authorizations (including producer equity ownership) would be issued and accepted by the participants.

(9) All parties would be assured that the project was economically viable.

(10) All parties would be assured that the Canadian segment would be financed and completed without U.S. company involvement.

Based upon the comments received from potential lenders, on June 17, 1981, the pipeline sponsors submitted to the President their recommendations for waivers considered to be necessary to permit the producers to consider participating in the project and to facilitate negotiations with potential lenders for the financing of the Alaska Natural Gas Transportation System.

Among the proposed waivers is a recommendation that the Alaska Natural Gas producers be permitted to own an equity interest in the transportation system. As we informed the Congress in 1977, we were not disturbed economically by being then excluded from equity participation in the project; however, we were deeply concerned that the President and the Congress would assume or suggest that our company had an obligation to put at risk a nonfinite sum of money in the form of open-ended guarantees of debts incurred by others while denying our Company any voice in management or voting power over expenditures. Even the fee for providing such guarantees was deemed by the President's Decision to be minimal and left to be determined at a later time. In 1977, we did not seek an opportunity to participate in the ownership or financing of the transportation system, on any basis. Until contacted by Dr. Schlesinger in 1979, our position remained the same. Since then, we have been informed by the Secretary of Energy, other administration officials and the pipeline sponsors that the gas pipeline project cannot be privately financed without producer participation. While we remain convinced that gas pipeline projects of this type should be owned and financed by gas pipeline companies, we are willing to consider participation in the ANGTS, but we have reservations about doing so.

To enable Atlantic Richfield to participate, even to a limited extent, it is necessary that the Congress approve a waiver of that part of the President's

Decision that excludes Atlantic Richfield and other producers from equity ownership in the pipeline. It is our belief that this barrier to producer participation was unwarranted in that it was based upon unrealistic judgmental theorizing by the Department of Justice which concluded that the producers should be excluded from transportation system ownership since such ownership in some manner might be construed to violate the antitrust laws. In our opinion, such determination was in error in 1977 and is equally in error at this time.

Our Company does not seek control of the transportation system, but it is neither able nor willing to commit the assets of Atlantic Richfield without ownership of an interest in the project which will enable it to ensure that our investment is properly managed. For example, our Company has no desire to influence or control access to the pipeline so long as the system is not jeopardized and so long as we are not required to contribute financially to permit such access. Similarly, we would want to participate in decisions relating to pipeline expansion only to the extent necessary to insure that our pre-existing investment in the pipeline system was not endangered by such expansion. Of course, all questions of access or expansion will come before the FERC for hearing and will be subject to Department of Justice review. We support the desirability of such Department of Justice review, and we are confident that this direct antitrust oversight will insure that the specific language in Section 13 of the Alaska Natural Gas Transportation Act and the policy behind such language will be strictly enforced.

While we firmly believe that producer equity ownership and debt responsibility in the pipeline system in no way violates the antitrust laws, to alleviate the apparent concern of some on this point, we suggested that the waiver language be accompanied with a provision stating that the waiver does not imply or effect an amendment to, or exemption from, any provision of the antitrust laws. Such a provision was included as Section 14 of the Alaska Natural Gas Transportation Act, and it would be appropriate to repeat the language in the waiver. We believe that it is inappropriate to create any antitrust standard applicable to producers only other than the standard set forth in Section 14, which seems to clearly reflect congressional intent to afford equal protection of law to all participants. Further, as noted in Alaska Northwest's June 17, 1981 waiver submittal to the President, producer ownership will, both initially and throughout the life of the project, be subject to FERC review. Thus, assurance will exist that producers cannot inhibit reasonable access or expansion.

Also included in the President's waiver proposals, is a recommendation that the conditioning plant required to prepare Alaska gas for shipment in the pipeline be included as an integral part of the Alaska segment of the ANGTS. The terms "gas processing" and "gas conditioning" have, during the history of this project, been used interchangeably as if synonymous. This is improper usage of these terms. Gas conditioning is properly defined as the act of rendering natural gas compatible with the design and quality specifications of a particular pipeline system. Gas processing refers to the act of removing liquid hydrocarbons for sale as natural gas liquids. It is important to keep this distinction in mind.

The gas conditioning plant to be constructed at Prudhoe Bay has been designed solely to meet the pipeline specifications selected by the sponsors. These specifications will require: (1) compressing the gas to unusually high pipeline inlet pressure; (2) establishing its hydrocarbon dew points at unusually stringent levels; (3) chilling the gas to below freezing temperatures; and (4) reducing the carbon dioxide content of the gas to a level significantly lower than the level ordinarily accepted for pipeline transmission. Such unique pressure and quality requirements will be imposed to provide initial pipeline compression, to facilitate the transportation of the gas, to prevent melting the permafrost and increase pipeline throughout capacity by chilling and to reduce transmission costs by eliminating carbon dioxide. These conditioning costs are therefore all properly a part of the cost of transporting the gas. The extraordinary specifications established by the pipeline sponsors for gas entering the ANGTS were designed to minimize the investment and operating costs of the transportation system. Further, the natural gas transmission companies which have already made public their arrangements for the purchase of Prudhoe Bay gas have contracted to take title to the gas including all entrained liquids at the inlet side of the gas conditioning plant. This reinforces the concept of the conditioning plant appropriately being considered a part of the overall transportation system.

The correctness of this concept has been demonstrated recently by Commission orders issued in March and June of 1981 in a proceeding involving Pacific-Offshore Pipeline Company (POPCO), FERC Docket CP74-35. The Commission there granted a certificate of public convenience and necessity to POPCO to construct an offshore pipeline and onshore gas conditioning facilities. Under the Commission approved plan, POPCO, a wholly owned subsidiary of Pacific Lighting Corporation, would purchase gas from the producer at the offshore production facilities, transport the gas onshore where it would be conditioned (or treated) to pipeline specifications and then resold to Pacific Lighting. The main conditioning plant components included (1) removal of sulfur, (2) extraction of carbon dioxide and (3) removal of liquids necessary to achieve hydrocarbon dew point control. Thus, the conditioning plant certificated in POPCO is similar in essential purpose to the Prudhoe Bay conditioning plant. In certificating the conditioning facility, the Commission recognized the basic distinction between gas treating or conditioning and gas processing.

The POPCO proceeding demonstrates that inclusion of the Prudhoe Bay plant in the ANGTS is compatible with current Commission practice. Further, numerous certificated pipeline projects heretofore constructed in the lower 48 states have included conditioning facilities and the cost of service of such facilities have been included in approved tariffs.

The producer/sponsor May 21, 1981 agreement on financing concepts recognized financing realities that had been increasingly apparent as design and cost estimate work proceeded, discussions between sponsors developed, and preliminary opinions from the financial community were received. As the investment banking advisors stated in their analysis of the project, "One financing absolute is that, in terms of financial risk assessment, the natural gas transportation related functions of the gas conditioning plant constitute an indispensable part of the ANGTS. It performs functions which should be part of the System. The gas conditioning plant function that is dedicated to readying gas for transmission is creditworthy only to the extent that the credit support for the ANGTS affords it security. By the same token, the other components of the System cannot obtain private financing unless the gas conditioning plant can be financed and constructed, and the debt and equity investment therein protected through the tariff mechanism underlying ANGTS. For financing purposes, this link in the chain forged by the ANGTS requires the same quality support afforded other components." In summarizing their position, the advisors observed, "Private financing without some such sharing would not be possible, for no lender could assess the risks of the project absent an evaluation of the gas conditioning plant risk, and could not provide funds to the truncated project without the same assurances being provided to the plant that the pipeline segments of the project is accorded. The financial community will not accept a situation where one integral part of the project is subject to regulatory treatment creating credit support materially weaker than another integral part."

The President's waiver proposals contain other recommendations that are deemed necessary by potential lenders and the sponsors if the project is to go forward. As a participant in the other large pipeline project in Alaska, the TAPS oil pipeline, we can attest to the difficulties which are to be encountered and the additional costs to be incurred if the regulatory review process is permitted to continue without limits. To the extent that Alaskan Northwest is required to participate in unnecessary evidentiary hearings prior to the commencement of each segment of the pipeline system, it could significantly prolong the time for completion of the project and add billions of dollars in cost.

This project has been reviewed as extensively as any similar project ever undertaken in the United States. The sponsors have stated that further regulatory hearings should be kept to a minimum and that the proceedings that are required should be handled expeditiously. We concur with this recommendation and support the President's proposed waivers relating to further hearings.

Potential lenders have informed the ANGTS sponsors that private financing of the project depends upon many factors, not the least of which is regulatory certainty. As we have learned from our TAPS experience, the need to clarify all regulatory standards prior to commencement of a project cannot be overemphasized, and the failure to establish the binding guidelines for determining the tariff can have unforeseen and detrimental consequences. Though the TAPS owners were convinced in 1973 that Interstate Commerce Commission regulations relating to oil pipeline tariffs were well-established and predictable, our company is now engaged in a protracted proceeding before the FERC to determine retroactively to the commencement of operations in 1977 the proper tariff to be charged for the pipeline shipment of Alaska oil. This proceeding has required that we commit thousands of hours of management time to defend a regulatory approach that we believed to be "certain". The ANGTS project will require a capital commitment between five and six times the amount expended on TAPS, and we share the concern of the lenders that a future regulatory agency, when confronted with the actual tariff, may feel compelled to revisit the decision of a prior commission and reduce the amount to be paid or modify the shipper tracking mechanism in a manner that deprives owners and shippers of the recoupment that they require to justify their respective investments and obligations. The proposal to waive Sections 4, 5, 7 and 16 of the Natural Gas Act is designed to provide potential lenders and the sponsors the assurance that once commitments have been made to this project there will be no arbitrary regulatory action which will jeopardize the recovery of cost of service or tariff. If Congress does not provide this degree of certainty, it could lead to the refusal of large segments of the financial community to participate in this financing because of their concern that the obligors on the documents of indebtedness might be unable to fulfill their obligations to the lenders. The TAPS owners were able to fianance their project because of the willingness of their parent corporations to guarantee the debts of their respective affiliates involved in the project. No such assurance will exist in this undertaking, and the lenders will expect assurance of regulatory certainty before proceeding with the development of the financial plan.

Like other possible participants in this project, Atlantic Richfield requires assurance that Alaskan Northwest Natural Gas Transportation Company will be considered a "natural gas company" under the Natural Gas Act at the time that it or its affiliated company as a co-owner in Alaskan Northwest participates in the acceptance of the certificate of public convenience and necessity authorizing the owners of the project to proceed with construction and operation of the system. Thus, we concur with the recommendation of the President that Section 1(b) and 2(b) of the Natural Gas Act be waived to the extent necessary to classify Alaskan Northwest and any shipper of natural gas through the Alaska segment of the approved system as natural gas companies.

Perhaps the most controversial feature of the President's waiver proposals relates to the waiver of Section V Condition IV-3 of the President's Decision. This waiver would authorize the Federal Energy Regulatory Commission to permit billing to commence and collections to be made prior to actual delivery of Alaska gas if the Canadian, Alaskan pipeline or conditioning plant segment of the system were completed and capable of operation and after a date established for payment by the FERC. We have been informed that some form of precommencement billing is necessary to fulfill a commitment of the United States to the government of Canada to permit investors in the Canadian segment to recover their investments if the entire project is not timely completed. Similar treatment is accorded the Alaska segment and the conditioning plant though the recovery is limited to debt service. Authorizing the Commission to permit collection of tariffs as to segments completed prior to the actual flow of Alaska gas should facilitate the financing of the project. Certainly, it will go a long way toward providing the assurances required by Canada prior to their issuing the necessary permits for the construction of the Canadian segment. The billing commencement waiver appropriately lessens some of the risks after physical completion. However, even if the full waiver package is approved, satisfactory financial commitments among lenders and equity participants must be negotiated. Until they are, we must remain uncertain as to whether or not the project can be privately financed.

Our company has specified the maximum commitment that it can make to the project. We are not trying to avoid risk per se, only risk beyond our financial capability; indeed, we find considerable risk in the thought of investing a finite sum of several billion dollars in this very costly system to send gas to a difficult-to-define future market in an economic outlook ill-defined as to inflation and cost of capital. Rather our concern is to reasonably limit our stockholders' risk capital to viable outer limits. Within those limits, we are concerned about the risk of overruns from unexpectedly high interest costs or inflation, about the risk of adverse political or economic events and about the risk of insufficient financial commitment from credit-worthy parties to assure that the expected project cost and possible overruns will be fully funded. We are equally concerned that wellhead or tariff revenue might be reduced to facilitate financing. We are trying to lessen our concerns by (1) elaborate, early project engineering and costing, and (2) adequate contingent financing up front and/or some form of completion insurance.

If additional financial support for the project is required, the sponsors must look to other sources. Absent further participation, such as from other pipeline companies, State of Alaska, industrial users or other producers, the only other source may be the government.

We strongly believe that the project is in the national interest and that its construction will not only bring Prudhoe gas to the lower 48 states but it will also ensure that North Alaska is fully explored for oil and gas reserves. Absent an Alaska natural gas transportation system, many producers will be discouraged and exploration which would be in the national interest will not occur or will be deferred for decades.

In summary, while we cannot state that the Waiver package will be sufficient to satisfy the potential lenders' needs and ensure financeability of the project, it would appear that appropriate legislative action to clear away legal barriers is necessary to permit solicitation of project participation and to set in place some of the key economic and regulatory terms necessary for all to decide if the project is economically feasible. We consider construction of the ANGTS to be in the national interest and are hopeful of its success.

Mr. SHARP. Mr. Mosier.

STATEMENT OF FRANK E. MOSIER

Mr. MOSIER. Mr. Chairman, my name is Frank Mosier. I am a senior vice president and a director of the Standard Oil Co., in charge of its supply and transportation activities.

My responsibilities in the transportation area include, among other things, Sohio's interest in this gas pipeline project, the trans-Alaska oil pipeline, and a fleet of ocean-going tankers transporting the Alaskan North Slope crude oil.

In the interest of time, I will not read my prepared statement, but rather I will just summarize the key elements and ask that the prepared statement be included in the record.

Mr. SHARP. Without objection, all the prepared statements will be a part of the record.

Mr. MOSIER. Briefly summarizing the main points of my testimony are Sohio's beliefs that natural gas from the North Slope of Alaska is a viable new source of energy for the United States.

We further believe the large diameter pipeline from Prudhoe Bay, Alaska through Canada to the lower 48 States is as good as any means to transport that gas.

Alternatives would present similar problems in financing and we would lose all the benefits of the far-advanced engineering and related work.

Sohio has no desire to be in the natural gas transmission business. But we recognize that without the producers' participation, this project cannot be financed. We have indicated a willingness to commit over $2 billion to this project under certain conditions, including the right to be an equity owner consistent with our investment if the conditioning plant is considered part of the Alaskan portion of the pipeline, and provided that the $30 billion Alaskan segment of the project and Canadian sector of the project can be adequately financed.

This is the largest up-front financial commitment Sohio has ever made to a project except for the front-end commitment to the trans-Alaska pipeline and Prudhoe Bay field.

Sohio believes the waiver package being considered is necessary to allow the project to proceed although it is not clear to us that a project of this magnitude can be financed in the private sector.

This summarizes the key elements of my testimony.

[The statement of Frank E. Mosier follows:]

STATEMENT OF F. E. MOSIER
BEFORE THE FOSSIL AND SYNTHETIC FUEL SUBCOMMITTEE OF THE HOUSE ENERGY AND COMMERCE COMMITTEE AND THE ENERGY AND ENVIRONMENT SUBCOMMITTEE OF THE HOUSE INTERIOR COMMITTEE

October 22, 1981

Mr. Chairman, my name is Frank Mosier. I am a Senior Vice President and a Director of The Standard Oil Company, in charge of its supply and transportation activities. My responsibilities in the transportation area include, among other things, Sohio's interest in this gas pipeline project, the trans-Alaska oil pipeline, and a fleet of ocean-going tankers transporting the Alaskan North Slope crude oil.

By way of background, following the discovery of the Prudhoe Bay oil field, the importance of the 26 trillion cubic feet of natural gas in this reservoir was recognized and studies were conducted to determine how best to move this gas to market in the lower 48 states. Sohio, as an owner of approximately 25% of the gas, participated in certain of these studies. We were convinced that this was an important future source of energy for the United States. Subsequent events have borne out that the production of the largest reservoir of natural gas yet discovered in North America is of vital importance to the United States. At a gas delivery rate of 2 billion cubic feet per day, this reservoir will supply approximately 5% of U.S. natural gas usage. Moreover, the availability of a transportation system will likely stimulate exploration on the North Slope of Alaska, which could result in additional significant natural gas discoveries.

Through the years we have been in a continuing process of evaluating alternative systems for the transportation and marketing of the Prudhoe Bay gas. We believe that the concept of a large diameter pipeline from Prudhoe Bay through Alaska and Western Canada to the lower 48 states is as good as any means to bring this gas to market. The Alaska Natural Gas Transportation System, frequently referred to as ANGTS, employs this physical concept. Other alternatives including an all-Alaskan line, conversion to methanol on the North Slope, and the use of ice breaking tankers, have several key characteristics in common with the ANGTS project. Initial investments of the same order of magnitude are indicated, and each of these projects has its own unique risks and regulatory problems. Selection of any of these alternatives would encounter similar problems in financing, and we would lose all the benefit of the far-advanced engineering and related work.

In testimony before Congress in 1977 when the President's Decision was under consideration, Sohio made it clear that we were not in the gas transmission business and had no desire to enter that business. We still have no desire to be in the gas transmission business. We also expressed the opinion that the project could not be financed without government participation, and we questioned the viability of the project under the conditions set forth in the President's Decision. However, in 1979 we were urged by the Department of Energy to consider becoming a part of this project because it could not be financed without the participation of the Prudhoe Bay gas producers. In June 1980, Sohio, along with Arco and Exxon, signed a cooperative agreement with the gas transmission companies to carry out design, engineering, and cost estimation work on the Alaskan segment of the pipeline and gas conditioning plant on a shared cost basis. The producers also signed a Joint Statement of Intention with the sponsoring partnership, pledging to work toward a financing plan. We believe that the producers have carried out their obligations under these agreements. Sohio's share of costs under these agreements has totaled approximately $40 million to date.

We have indicated a willingness to take on a commitment of up to $2.25 billion which represents a share of the producers' overall 30% interest in the Alaskan segment of this project. Our share will be based on our percentage of gas reserves supplying this facility. This participation is subject to certain conditions and limitations. Two of the conditions are satisfied by elements of the waiver package which is the subject of these hearings. Sohio must have an equity interest in the project consistent with its level of investment, and the gas conditioning plant must be part of the transportation system. Other conditions and qualifications which must be satisfied include the following: the total project must retain economic viability; all necessary governmental approvals must be obtained on a timely basis; there must be assurance that the Canadian segment will be financed;

all funds for the Alaskan segment must be committed before construction commencement; and the financing must be on the same terms and conditions which apply to other investors in the project.

The fact that Sohio has agreed to commit over $2 billion to this project is a statement of our current attitude on its importance, the appropriateness of the physical concept and its prospective economic viability. However, if world events or governmental processes or decisions change the viability of this project, we would have to reassess our participation prior to major expenditure of funds.

This project is the second largest, upfront financial commitment that Sohio has ever made, exceeded only by our initial $4 billion commitment to the trans-Alaska oil pipeline and the Prudhoe Bay field development. During the next 5 years, while this project is under construction, Sohio's capital expenditures are anticipated to be about $20 billion. Over 80% of these expenditures are for domestic energy-related projects and programs. Approximately $6 billion represent expenditures to maintain the Prudhoe Bay oil production. No other single project will carry with it an upfront commitment as large as $2.25 billion. Unlike ANGTS, other projects and programs can be accelerated or slowed down as circumstances dictate. The lack of flexibility in a commitment of this size, and other risk factors such as uncertainty of future gas prices, gas markets, capital cost overruns, and completion delays, make it less than prudent for us to commit more than $2.25 billion to this project. I want to emphasize that this commitment of $2.25 billion is the upper limit of our participation.

An additional condition to Sohio's participation in this project is that initial financing arrangements for the Alaskan portion must be for at least $30 billion. This amount, which includes a $3 billion overrun pool, is based on definitive estimates prepared by contractors at a cost to the participants of about $400 million. Our experience with high rates of inflation for construction on the North Slope of Alaska substantiates the need for the included contingencies and overrun pool.

As indicated above, two important elements of the waiver package are necessary to obtain our participation in the project. If we are going to provide financial support, we must have the right to be an equity owner, and the conditioning plant must be included as part of the transportation system in Alaska. Equity ownership is required because those who invest in a project are entitled to the full benefits of ownership. The conditioning plant must be included because it is necessary solely to prepare the gas for entry into the pipeline. The design basis selected for the pipeline dictates the degree of conditioning required. Alternative pipeline designs could have been selected at higher capital costs and lower operating efficiency which would have eliminated the need for this facility. The conditioning plant is a part of the transportation system selected and should be included in the system for tariff and other purposes.

In conclusion, the equity and gas conditioning plant provisions of the waiver package are critical to our participation. Other provisions such as regulatory certainty and billing commencement are critical to the sponsors and bankers. It is not clear to us that a project of this magnitude can be financed without Federal government participation. However, it is clear that without the waiver package the project cannot go forward.

Mr. Sharp. Mr. Rogers of Kentucky is recognized for 5 minutes.

Mr. Rogers. Thank you, Mr. Chairman.

I am puzzled, Mr. Reso, by your initial statement that you were reluctant to become involved in this project for the variety of reasons you mentioned.

I am wondering what changed your mind.

Mr. Reso. What changed our mind, Mr. Rogers, was the fact that the Secretary of Energy, then Dr. Schlesinger, called us in and requested we help finance this project.

The opinion was expressed to us and we were convinced by arguments made by Dr. Schlesinger and then later by Mr. Duncan, that the project would not be financeable without our participation.

So we were reluctant but we were willing to participate. We were assured at that time that the legal impediments to our participation would be removed, because at that time, of course, as today, it was not legal for us to be investors in the project.

From that, led to negotiation of terms under which we have agreed to participate; terms acceptable to the Department of Energy, acceptable to the sponsors and acceptable to us as producers.

Mr. Rogers. What are the details of the participation in the ownership that you see?

Mr. Reso. It is pretty straightforward. One is that we three producers have agreed to supply 30 percent of the capital. We have agreed to arrange for 30 percent of the debt. We have requested that each investor be treated equally, so the funds we bring to the party are treated the same as the funds anyone else brings.

We will not overfinance somebody else. We will not become a banker for an investor. Also, we have agreed to the inclusion of the gas conditioning plant as part of the pipeline system. We have agreed to participate on the basis as Mr. Leake said, that the Canadian portion of the system would be financed without our participation.

In other words, we didn't want to have to negotiate a deal on the Alaskan segment and then come back at the end of the day and say, well, let's do another one for the Canadian system.

We also agreed that our participation was based on our finding that the project was economically feasible. We are convinced right now that the project is economically feasible under the terms that have been negotiated.

That is about it. Those are the major terms for participation by producers.

Mr. Rogers. Do you see a complicating factor, if the waivers are granted and you are permitted to have equity ownership in the project, do you see some antitrust problems inhibiting the development of the North Slope reserves?

For example, limitation to the access of the gas transportation system?

Mr. Reso. No. Mr. Rogers——

Mr. Rogers. Is there some problem we might have?

Mr. Reso [continuing]. No, I don't see any antitrust problems. We thought that the finding in 1977 that there were antitrust problems involved in producer ownership of equity was a bad decision.

We thought it was ill founded. We didn't think it was right, but we didn't object to the decision because we weren't interested in investing in the project.

I think that there are protections built in through the regulatory process governing the interstate transmission business, to protect the people against that type thing. I think that is one of the responsibilities of FERC. We are all, of course, subject to all the normal antitrust laws.

In fact, we have a great interest in the expansion of this system if expansion is feasible. We are exploring for oil and gas on the North Slope.

Mr. ROGERS. On a more practical basis, suppose the pipeline is built and you're owner of a 30-percent equity, and it becomes more profitable to your company to ship less gas through this pipeline in order to sell more oil supplies to a competing type of activity.

Where would you——

Mr. RESO. I can't imagine that circumstance happening. It is so hypothetical that I can't imagine that happening. We do have, you know, a contractual obligation to deliver gas into this system out of our production.

In fact, there would be no financial reason for us to withhold that gas.

Mr. ROGERS. Wouldn't you lose some fuel oil sales if you built a gas pipeline?

Mr. RESO. The problem in our industry, as it is in the country right now, really is—in the United States, is not losing sales of fuel oil. The United States is short of energy resources. We are importing energy resources. This gas will come into the systems of gas distribution companies. I think about 48 percent of the gas distribution customers in the United States will receive gas from this system, and most of the gas will be used in the residential and commercial sector.

There will be no way for us to identify these molecules as competing for fuel oil customers of ours and I think generally they will not be competing.

Mr. SHARP. Time of the gentleman has expired.

The gentleman from West Virginia, Mr. Staton.

Mr. STATON. I think I have got this right now. In 1977, President Carter said you couldn't participate.

Mr. RESO. That's right.

Mr. STATON. In 1979, then Secretary of Energy Schlesinger said you must participate. This particular portion of the waiver package was offered at that time by Secretary Schlesinger?

Mr. RESO. Secretary Schlesinger did not demand that we participate. He requested that we sit down and negotiate ways in which we could. Then we called to the attention of the administration that we were barred by law——

Mr. STATON. What did he say? And so now this particular part, even before the current waiver package that it was ever offered.

Mr. RESO [continuing]. That's correct. As the law now stands, it is not legal for Exxon to own a share of this project. That is the reason for part of the waiver.

It must be made legal if we are to participate.

Mr. STATON. Do you share that opinion, that you should be in?

Mr. **Reso**. We would rather not be in as investors. It is not our business. It is not the business we are inclined to invest in.

We think it is an important project. We have been convinced that our presence is required if it has a chance to go. We don't know whether our presence will make sure it goes.

To that extent, we are willing to participate to the extent of about 11 percent of $30 billion.

Mr. **Staton**. I have heard both panels express some reluctance to say the package can go. Given, on a scale of 1 to 10, what would you say, if the waiver package were granted, that private financing could be arranged?

Mr. **Reso**. I think you ought to ask the people that are involved with providing the debt financing for the project that question. I really don't know. I am being very honest with you.

Mr. **Staton**. I don't really want to fight this particular battle if there is no possibility of even getting the financing after that.

You are saying we don't even know if this is going to do the job. You must have some confidence there that it might do it.

Mr. **Reso**. I think it has a chance of doing the job, as you said. But I really don't know. I would be misleading you if I should say this is really going to make it happen.

Mr. **Staton**. You talk about Canadian participation——

Mr. **Brown**. Would you yield? I just wondered how many of the bankers that are putting up the money are bigger corporations than Exxon.

Mr. **Reso**. I doubt that any of them are a bigger corporation than Exxon.

Mr. **Staton**. Let's go to the Canadian participation here. What is your confidence that the, I guess, Canadian Government, those people who participate on the Canadian section, what is your confidence they will arrange their financing and get their part of the pipeline built?

I would hate to see us end up in Alaska and the part down in the United States and be sitting there waiting for Canada to get its act together.

Mr. **Reso**. One of the requirements for our participation was that all the financing would be arranged prior to everyone making a final commitment.

So before we would make our final commitment of our funds, all the financing would be arranged finally, including that for the Canadian segment, and Canadian segment financing would not require our participation.

Mr. **Staton**. Thank you very much. You have been very patient. I have no further questions.

Mr. **Sharp**. Thank you.

The gentleman from Indiana, Mr. Coats. He is not here.

The gentleman from Ohio, Mr. Brown, is recognized for 5 minutes.

Mr. **Brown**. Gentlemen, I just want to talk to you about the principal investment for a minute.

You know, a decision to make an investment has many facets, as any American citizen who has some discretionary funds to invest has discovered.

You can get a big return on your investment in money market certificates but they are not guaranteed. Or you can decide to put some of your money in Oriental rugs and hold them against inflation and hope that they go faster than inflation.

Or you can try to get your wife to take a degree in accounting someplace and then see if you can put her to work and make some money in that regard as she brings in additional income.

Let me read for those three analogies the choice that you all had upon the investment. That you could put your money in this pipeline, and get a fairly substantial return if it is successful.

But there are a lot of risks in whether or not the investment will ever pan out. Or you could invest the money in just leaving the gas up there and hope that it goes up faster in value over the years ahead than some other investment that you might have.

And that wouldn't take a very substantial amount of money because you have the gas now. All you have to do is reinject it, and you lose some of it. But I don't know how much. I will ask that.

Or you could take the other route and make a more moderate investment, maybe take your money and see if you can find oil or gas someplace else.

I ask this of Exxon because your company has made some interesting discretionary investments in Reliance Electric and some other places with, well, interesting results in some instances.

But the real question is, it is a choice of where you put the money, is it not? And you said that you would prefer not to.

I understood Mr. Mosier said that he would prefer that they put their money maybe somewhere else. I am not sure whether I read that or heard that in Mr. Leake's statement.

Mr. **Leake**. You did.

Mr. **Brown**. Would you please advise me just sort of down the line seriatum there, what are the choices you would rather have for your money, what happens if the gas is not moved over the next few years?

Do we lose a vast national asset, or is it just in cold storage until we figure out another way to get it out later on?

What is the relationship of the potential cost for getting it out later and so forth?

Mr. **Reso**. I might start if you like. I won't discuss our investment portfolio with you or all of our opportunities because they would probably put me in jail because I am in front of some of my competitors.

But we invest and this year we are going to invest $11 billion worldwide, about half of that in the United States, and 90 percent of that is in energy fields even though some of our other investments get a lot of publicity; 90 percent of our investments have been in the energy field. That 90 percent is significantly more than our earnings. This investment we are talking about making here is more than the net profits we make in the United States per year.

What will happen with the gas? Continued reinjection of the gas produced will not cause a loss in gas. The gas will be there.

Mr. **Brown**. And go up in value?

Mr. **Reso**. I don't know. I presume it probably will. Everything else is going up. What will happen if this project fails? I guess we will all regroup and go back to the drawing boards and try to see what alternative can be put in place.

All our studies have indicated from a technical standpoint that this project is the best way to get gas from the North Slope of Alaska to the lower 48 States.

Mr. Weaver, I am a petroleum engineer. I used to be. Perhaps I better not claim to be one anymore. But we have investigated all the other alternatives, and by a pretty significant margin, technically, physically, this is the best way to do the job.

We will go back to the drawing boards and try to come up with another way.

Mr. **Brown**. Before you finish, because I asked the question about the size of your company with reference to the banks, why doesn't Exxon just go ahead and build the pipeline?

Mr. **Reso**. We are reluctant to put that much money in a business that is so highly and tightly regulated. We think we have much better investment opportunities for our shareholders' funds.

If someone wants to own shares in a company that is in the interstate gas transmission business in a big way, they don't buy shares in Exxon. They buy shares in some of these pipeline companies.

Mr. **Sharp**. The time of the gentleman has expired but if the witnesses may wish to answer the question.

Mr. **Leake**. Mr. Brown, our answer would not be substantially different than Exxon's, other than in size. Our capital program this year will be about $5 billion.

Our share of this would be about twice our annual income. We are going to spend some $30 billion over the next 5 years in all our capital programs over 60 percent of which is going to be in U.S. exploration and development.

There are no cheaper alternatives to bringing gas to market this way, whether the gas increases in value over time depends upon a lot of world economic conditions. It may well.

Mr. **Brown**. You have better, safer investments, though, is that what you are saying?

Mr. **Leake**. No. We have better investments, and I'd guess all things considered, since they might be in smaller pieces, and we can control the pace of spending, and can stop, if necessary, without having a share of $9 billion firmly committed, they are to that extent safer.

Mr. **Mosier**. Congressman Brown, with regard to Sohio's situation, it is probably pretty evident to most of the people here that we are sort of a one-project company. And that project is the North Slope of Alaska.

Fate has been very good to us, much better than we had anticipated on that one project. This particular project is associated with that particular reservoir, and a massive investment above the level which we are talking about, which is also a very significant amount of money, would make certain that, for the rest of this century, we would continue to be a one-project company tied exclusively to a single reservoir.

Our total capital projects during the period of construction of the project, over the 5 years, we will say, will approximate $22 billion.

Over 80 percent of that will be in the energy field, alternative sources of energy, domestically in the United States. A lot of it on the North Slope of Alaska.

In fact, I believe some $6 billion will be required during that period to maintain oil production there.

So we have this level of dedication of funds to the oil and gas business in projects which we feel are equal to or better in many regards in terms of expected return than this gas pipeline project. We made this dedication because we are convinced that this project is viable at this point.

But it is a question of degree and it is a question of risk and it is a question of management and prudence on how much money we dedicate to each of the several alternatives we have in the energy field.

That is how we arrived at our position here.

Mr. **Sharp**. The time of the gentleman has expired.

The gentleman from Oregon, Mr. Weaver, is recognized for 5 minutes.

Mr. **Weaver**. Thank you. I heard that after 1985, you couldn't any longer inject the natural gas back into the field. It sounds like——

Mr. **Reso**. That is not right. The information you received was incorrect.

Mr. **Weaver**. You can, in other words, go for quite a while?

Mr. **Reso**. Yes.

Mr. **Weaver**. Many, many years?

Mr. **Reso**. Yes.

Mr. **Weaver**. I am glad to hear that. What is wrong with this methanol plant idea? Obviously you have explored it. I know Atlantic Richfield has.

Mr. **Leake**. Mr. Weaver, we are very familiar with Professor Marsden's work and have worked with him over the years, supported him financially and his students who have done much of that work.

Mr. **Weaver**. What is wrong with the idea?

Mr. **Leake**. There is nothing technically wrong with making methanol. You heard yesterday from Mr. McMillian that in constant 1980 dollars, the Alaska Natural Gas Transportation System, including the conditioning plant, was going to be, I think he said $23 billion.

But say in the range of $20 to $20-plus billion. Our analysis and we have worked at it very carefully, to build and make an equivalent amount of methanol would cost in the range of, on the same basis, $15 or $20 billion.

Mr. **Weaver**. He is not talking about making an equivalent amount. You see, there is nothing that says we have to get this gas up as fast as we can. Let's get it up—50 years from now, my children and their children are going to need gas and oil.

Mr. **Leake**. Fine.

Mr. **Weaver**. So we don't need to take it out all at once as fast as that. Wouldn't it be economical to, in a smaller way, take this methanol? Mr. Marsden says it is 60 cents a gallon.

Mr. Leake. If you were going with the smallest possible plant, you would get it to market at considerably higher cost than the natural gas transportation system.

Mr. Weaver. I am sure you used the very best people to do these estimates and I understand that. In my years in the Congress, I have found sometimes people use experts to enhance their point of view.

Mr. Leake. Certainly I am sure you don't.

I certainly am not representing myself as an expert or trying to dispute Professor Marsden.

Mr. Weaver. I don't have a point of view. I just represent the public.

Mr. Leake. Let me close on a light note. It is our considered view that conversion to methanol, although a technical alternative, may be the only alternative to ANGTS, if ANGTS is not constructed.

Mr. Weaver. You do feel it is an alternative?

Mr. Leake. It is indisputable that you can make methanol and it is indisputable you can move it via taps. What does it cost? You have to deal with the efficiency that uses up half the gas, then you have to find somebody who wants to buy it.

Mr. Weaver. I would like to see the studies. Would you furnish those?

Mr. Mosier. I would like to make an observation since I have a fairly close relationship to the oil line. There is no space in the oil line for methanol transportation.

Mr. Weaver. Well, no, you won't send as much oil over.

Mr. Mosier. Not only are we going to restrict the rate at which we produce the gas for the North Slope, now we are going to slow down the oil production.

Mr. Weaver. No, you don't quite understand. The oil isn't going to go away, is it?

Mr. Mosier. I must admit I am confused. The signals that we have tended to get over the last decade in this country and criticism that I hear more often than not is that oil companies tend to want to shut in gas or oil fields or oil wells.

We felt it was in the national interest when we discovered these oil and gas pools—that it was the best thing to do for the Nation—to bring them into the market and produce them at the maximum efficient level.

Mr. Weaver. There's been continuing controversy in the Congress and Nation about this. You are talking to someone who doesn't think we should be burning it up as fast as we are.

I am very strongly of that opinion. As a matter of fact, I have said before I think that if the price were much, much higher, we would use it more prudently.

So in many ways, I am on your side. Let me—there is a net energy loss also in this conditioning plant, is there not, in the shipping of gas down to—have you figured out what that net energy loss is?

Prudhoe Bay to the delivery point, how much net energy are you delivering?

Mr. Reso. I don't have the exact numbers, but it is not a very large percentage, probably something less than 10 percent in fuel, both in the conditioning facilities and refrigeration and compression, substations in Alaska.

We can get you the numbers, but they are not anything comparable to the thermal inefficiency of methanol conversion.

Mr. **Weaver**. I see. Thank you very much.

Mr. **Sharp**. I believe the gentleman from Indiana is next, Mr. Coats.

Mr. **Coats**. I have no questions.

Mr. **Sharp**. The gentleman from California, Mr. Dannemeyer.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

I would like to ask Mr. Mosier, will your participation in this project be at all affected if next week the Congress decontrols the price of natural gas and the President would sign such a bill, that is, all types of gas?

Mr. **Mosier**. The answer is no. The short answer is no, it would not affect our participation in the project. But to go further, I would say we are certainly in support of legislation in that direction.

Mr. **Dannemeyer**. Thank you. Mr. Leake.

Mr. **Leake**. The answer is no to your question, and we would support deregulation today.

Mr. **Dannemeyer**. Mr. Reso.

Mr. **Reso**. I guess you know what my answer is. We think that deregulation is good public policy in whatever form it can come about. A case could be made that deregulation of natural gas, all natural gas, including Prudhoe Bay gas, would enhance the viability of this project as opposed to damaging it.

I personally think that is the case and we would be just as enthusiastic as we are now about the viability of the project.

Mr. **Dannemeyer**. I thank you for that. The question has also been raised about producer participation in the financing of the pipeline.

Now, I understand things changed and you were asked to participate. The understanding I got was that there may come a conflict of interest into existence assuming some other company would go up there and develop a gas field or make a strike of gas, then try to ship their natural gas out and you people would own the pipeline or at least have a foot in the door as to utilization of it. That other producer could not then get their gas down that pipeline.

What concerns should we have about that prospect? First off, is there any other company on the rise that has the wherewithal to go up and explore and make a strike?

Mr. **Reso**. There are a lot of companies exploring. There is a lot of activity and discoveries have been made that are in the process of being confirmed. Companies are assessing the commerciality of them by drilling additional wells.

Mr. **Dannemeyer**. Supposing they make a strike and march up there some day and say, Exxon, can you find room in the pipeline for shipping our gas down?

And you say, come along with me, my friend. Let's sit down and negotiate.

Mr. **Reso**. Let me remind you that Exxon will have 11 percent of this project, as currently organized, and will not have the power to make that decision if we wanted to.

We would have, as an active explorer on the North Slope and Alaska, ourselves, would have active interest in the continuing expansion of the capacity which at increments will become less and less expensive than the initial, on the unit basis and the initial cost.

Mr. DANNEMEYER. How about the other representatives here from Sohio or Arco?

Mr. LEAKE. Atlantic Richfield looks forward to the expansion of the pipeline.

Mr. DANNEMEYER. You would think if some other producer than the three of you were to come up with product to move, that that producer would be accommodated in this pipeline?

Mr. LEAKE. Assuming it was within the physical limits of the expansability of the pipeline.

It becomes an economic choice of all the owners to make.

Mr. DANNEMEYER. Mr. Mosier.

Mr. MOSIER. Our participation would be something under 8 percent. We would be even in less of a position to control the outcome of that kind of a situation.

We also feel, as does Mr. Leake, that expansion of the line would carry with it certain increases in the economic viability of the system for everybody concerned.

I can't visualize a circumstance under which this would be a problem.

Mr. DANNEMEYER. As to the projected rate of return for this regulated industry, I have heard of 24 percent to the investors of which your companies would get a share. How does that compare with other investment opportunities your companies encounter?

Mr. RESO. I don't think that the Federal Energy Regulatory Commission has allowed 24 percent returns on investment. There are lots of ways to calculate returns.

We look at returns on the total capital that we bring to a party and in the natural gas interstate transmission regulatory scheme, usually that results in something in the 10-to 13-percent return range.

Mr. DANNEMEYER. That is what you anticipate from this?

Mr. RESO. That is what we anticipate from this investment.

Mr. LEAKE. Mr. Dannemeyer, you are locked in pretty much to a low total return, assuming one way or another you are responsible for the debt and equity.

The debt portion is the only return that you will get on that will be just a pass-through of interest cost. So if the debt cost 14 percent, that is before tax. And 7 percent, say, after tax in rough terms.

FERC will control the return on equity to, say, in this case, depending on the outcome, for simplicity's sake, let's say it turns out the return is 15 percent and the arithmetic, 7 percent after tax and 25 percent equity at 15 after tax is going to get you down towards 10 percent.

Mr. MOSIER. I would like to add to that and comment that that is not even inflation-adjusted. So in terms of a real rate of return, it is pretty marginal.

Mr. **Dannemeyer**. I guess that explains in part your reticence about being involved in this project as investors from the outset, is that fair?

Mr. **Leake**. From time to time, we have better opportunities than that, Mr. Dannemeyer, and hope to pursue them.

Mr. **Sharp**. The time of the gentleman has expired. If I could ask a question that you answered to Mr. Weaver, but because there have been representations made to us that if we don't do this, there will be a problem with production, I want to understand. You are saying there is really no problem to the gas, there is no limit to the time you could inject and, therefore, we would be stifling oil production if we don't move rapidly to do something with the gas?

Mr. **Reso**. We do not have to sell the gas in order to manage properly and effectively the Prudhoe Bay oil field. We will continue to reinject the gas. We can do so without damage for many, many years.

Of course, it is a valuable asset that we are very concerned about bringing to market.

Mr. **Leake**. Just one other thing, Mr. Chairman. Way down the line, sometime in the next century, not selling gas will affect the economic limit of the Prudhoe Bay field.

There will be some point in time when the cost of reinjecting the gas is equal to the value of the oil sold. But that is a long way off.

The worth of that oil is high enough that we will continue to inject gas if this pipeline doesn't go in. It won't affect the recovery of oil from the reservoir nor will it dramatically affect our management of the resource.

Mr. **Mosier**. I am not a petroleum engineer, but our engineers have advised me similar to Mr. Reso's statement.

Mr. **Sharp**. Let me ask you this, because part of that argument was someone would have to go to build a methanol plant, that would just have to be done if we didn't approve this program.

If I could go back just briefly, could you just restate for us your experience about the relative value of any methanol option to the ANGTS option, Mr. Leake?

Mr. **Leake**. The methanol capital costs are going to be in rough terms nearly as much as the ANGTS costs. The operating costs are going to be some, by our estimation, three times higher on an annual basis and the delivered methanol, methanol will deliver energy on a basis that is like 90 percent efficiency compared to 50 percent efficiency.

So it is going to use up the difference, or a delta of some 40 percent of the gas just in consuming itself in the manufacturing process.

Mr. **Sharp**. That is independent of the question of the variable Mr. Mosier raised as to the capacity of the pipeline?

Mr. **Leake**. There is no capacity in the pipeline at the moment for doing this. The addition of methanol, it doesn't mix happily with crude oil. You have to separate it and batch it down. You have to spend money.

You have to spend capital in order to get it through TAPS. There would be some tradeoff on capacity, perhaps pay for additional capacity in TAPS, in the trans-Alaskan pipeline system that moves oil. Basically, it is a more costly way to get Btu's to the market.

Congressman Weaver's notion, and it is not invalid at all, start small and grow over time. If the Nation needs the energy and in this size, we assume the Nation needs it now.

And a comparable amount of methanol to this natural gas is some 500,000 barrels a day of methanol. No end users of that amount now exist in North America.

Mr. **Sharp**. So you think it is highly, or I will ask you what your judgment is. Should either, because of Congress or the private market, be unable to raise the capital for ANGTS, and the project clearly appears to be not going forward, it is not likely we will see over the next 5 to 10 years a methanol project under way by the private market.

Mr. **Leake**. In my opinion, that goes further than I wanted to at the moment. What I was trying to make is that, in making clear to you, that the proposed Alaskan Natural Gas Transportation System is the way to go if the desire is to get 2 billion cubic feet of gas a day to the market as quickly as possible.

Absent that, then we, for one, will continue to look aggressively at what our options are. Methanol being one.

Mr. **Mosier**. I would make a comment on this. In any scenario where methanol is substituted for oil in the pipeline, how there would be any incentive on the part of the oil producers to make that kind of a substitution eludes me.

I am not sure I would understand what their stance would be. And it is difficult to understand who the investors are that would want to do this, where the money would come from, who would finance it. Why would this represent an easier financing job raising $30 or $40 billion for methanol from the North Slope with these uncertainties? Maybe we would do it in $1 or $2 billion modules, but you still have the problem of needing some sort of market-based, compelling reason to do it, and you need someone who is prepared to invest the money.

I don't know whether the other companies have experienced this but we have. No one that I am aware of has come to us and suggested they would like to buy our gas to make methanol as a commercial venture.

Mr. **Weaver**. Would the gentleman yield briefly? Professor Marsden says it would cost $6 billion, his project. Does he simply not know what he is talking about?

Mr. **Mosier**. Remember, there were people who told you this gas line project would cost you $10 billion 4 years ago. When you haven't developed an intensive analysis, with all of the implications of these kinds of projects, an off-the-top estimate, even by a consultant, in a less than fully developed situation like this, generally grossly understates the ultimate cost.

We found that out the hard way on the oil line and people are finding this out on the gas line. I would be willing to bet you we would find out, if we started with the methanol project, that the same kind of factors are operating.

Mr. **Reso**. I think if this currently structured pipeline project fails, that we will be back at the drawing board trying to put together another gas pipeline project, not another methanol project with a cocktail of crude oil and methanol, which nobody wants to buy. You would have to spend vast amounts of money, increase the risk of operation at the refineries, alter their burning facilities in the powerplants. Nobody wants such a product.

Plus, all of our analysis, that of investors who would be putting the money up, we say that is not anywhere near the answer.

Let me tell you that we have a great interest in finding the right answer for the best exploitation of those reserves on the North Slope. We are very serious about trying to find the right answer.

We are not trying to—we don't shove aside anyone's ideas. We have investigated all the ideas that have come forward and we have concluded that a methanol option is not near as favorable as bringing natural gas ready to burn down a pipeline into the lower 48 States.

Mr. WEAVER. Probably so, Mr. Reso. When I went to Dr. Schlesinger about this idea when I first talked to Marsden about it 4 years ago, he said just what you said, there was no market for methanol.

A year later, the same Dr. Schlesinger signed a contract for a huge methanol plant in North Dakota and I thought, you know, what is going on here?

Mr. SHARP. Gentlemen, you don't have to comment on the judgment of Dr. Schlesinger. But let me ask you a different question here.

You have indicated that your reluctance to be involved has to do with the history of your business and the fact that there are alternative investments that might be more attractive to you.

Is any of it related to a question that some people raise to us that, in fact, the gas might not be marketable in the near future or at the time that it is done in the sense that it is just going to be so high priced that it will create major problems for the distributing companies?

Mr. RESO. Mr. Sharp, we are committing ourselves to arrange for more than $3 billion worth of capital to go into this project.

That is a significant amount of money. If we thought the gas was not marketable, I wouldn't be sitting here saying that right now.

Mr. SHARP. But you don't think between now and the time the financing package is put together that you and others will be reviewing this and getting some of these higher estimates on gas and that we are somehow pushing into the range where you people might decide to back out before the final, do you understand what I am saying?

We keep hearing changes in the estimated cost of the gas.

Mr. RESO. We are comfortable with the cost.

Mr. SHARP. I see.

Mr. RESO. That has been developed. We think the engineering work has been done in a very sound way, very complete way. After all, $400 million was spent in engineering and cost estimating this pipeline. It was done with the participation of about half the interstate pipeline companies in the United States and their technical staffs and with the technical staffs of the three largest producers on the North Slope, the only people with lots of years of experience in Arctic construction, so we are very confident that we have done the engineering job well, well enough for us to make our investment decision.

We bet on our perception of the energy marketplace in everything we do, and this is just the same with this project as any other one.

Mr. **Sharp**. Is there any chance that, in fact, the gas that you, as producers, are selling into the system will have to be sold at below the price control level in order to make it salable?

Is that a likely prospect, or do you think——

Mr. **Reso**. I don't think that will happen. I think that under a deregulation of price scheme that market forces will come to bear, and I am totally confident that the contractual arrangements required between all the parties involved will meet a happy end, and this gas will find its way into the marketplace.

Mr. **Sharp** [continuing]. Is there any difference of opinion on that, Mr. Leake, or Mr. Mosier?

Well, gentlemen—I will be happy to yield to Mr. Brown. We have another panel.

Mr. **Brown**. Three quick questions to clinch in what you have said. If the project doesn't go forward, will any of you lose any money out of pocket except the type of your testimony here and so forth?

Mr. **Reso**. We, as producers, have spent half of that $400 million. Exxon's share of that $200 million that was spent by the producers is about $70 million.

Of course, that money would be lost, except we would still own the design and engineering work and that is a valuable asset.

Mr. **Brown**. If the project is successfully completed, what percent return do each of you think, or does your company estimate it will make?

Mr. **Reso**. I don't know what we will make, because we don't know how things are going to work out for the project; how we are going to work out the cost of operating on the North Slope.

We think that this project will give us a return commensurate with the rest of our producing business, which is above a utility rate of return.

Mr. **Leake**. No significant difference.

Mr. **Brown**. If the project is started but not completed, what will be the parameters of the losses, if any, that you will sustain?

Mr. **Reso**. If the project is started and not completed? That depends upon when it is stopped.

Mr. **Brown**. The parameters of loss?

Mr. **Reso**. If it stopped the first day, your loss would be de minimis. If it was stopped before any—if all three of the major segments were 90 percent complete, our loss would represent 90 percent of the capital that we had committed to the project which may approach $3 billion.

Mr. **Brown**. Any different comments?

Mr. **Leake**. Given those terms, our loss would be in the range of $3 billion if the project was nearly completed and gas didn't flow.

Mr. **Brown**. That $3 billion is the limit of what you are willing to commit to the project?

Mr. **Mosier**. Our ownership of gas is slightly lower than the other two producing companies, so our level is around 2¼ billion.

Mr. Reso. We have agreed under the terms that have been negotiated to arrange for 11 percent of the project finance. Our estimate of that is $30 billion, so that is how we get $3.3 to $3.4 billion.

Mr. Brown. Is that a limit at this point? If the project costs more, are you willing to put in more?

Mr. Reso. That is the limit right now. We have agreed to commit that amount of money.

Mr. Leake. That is the limit for Atlantic Richfield Co.?

Mr. Mosier. That is the limit for Sohio, yes.

Mr. Brown. Finally, why not build a pipeline to Valdez and let the Japanese take it on their own vessels FOB Valdez?

Would that reduce the cost?

Mr. Reso. Reduce the cost?

Mr. Brown. Reduce the cost of the delivery system, because there are other systems that are compared as I understand, include construction of vessels to deliver it to the United States.

What I am suggesting is——

Mr. Reso. Total cost of delivering LNG to the marketplace has been found to be less favorable, or the cost to be more than the cost of delivering these Btu's to the marketplace with the Alaskan gas pipeline.

Mr. Brown [continuing]. But I am suggesting a different marketplace.

Mr. Reso. You are simulating again the LNG project that was reviewed and, by the Government, with one alternate, instead of going to California, go to Japan. Essentially the cost ought to be the same.

Mr. Brown. The cost for us building the pipeline might be considerably less and you have an item you sell on balance of payments like the Mexicans are willing to sell us their oil.

Mr. Reso. That is a matter of public policy that I don't think I should comment on.

Mr. Brown. But the question is, would the cost be greatly reduced? I am not asking about a policy issue or making a determination——

Mr. Reso. The cost of doing a piece of the job naturally would be less than doing all the job.

If that is what you are asking me, you are absolutely right. Less than one is less than one.

Mr. Mosier. We looked at that alternative, and we have looked at many other alternatives, also. As was pointed out, when you have these reserves, you have to look at all the alternatives. It has the same order-of-magnitude cost.

One could argue whether it would be slightly greater or slightly less. We are operating from a much less defined engineering base, but it is the same order of magnitude.

Mr. Reso. May I add something? There is something else about this pipeline that really hasn't been expanded upon very much today.

This LNG plant, if you want to double it, you are into doubling everything you have done, essentially. This is a project that ties in a pipeline, as shown on that map over there, with the largest single source of natural gas in the United States, also in an area that has the highest potential for new natural gas reserves in the United States.

And it ties it into the distribution system that spreads all over the lower 48 States of the United States.

Additional increments of capacity can be added at very low-incremental cost up to a very large multiple of the initial capacity.

And that has not really been discussed and I think it is an important thing for you fellows to consider.

Mr. SHARP. Gentlemen, thank you very much for your time and cooperation.

If we have any further questions, if you wouldn't mind answering in writing, we will submit them to you.

Thank you very much.

Our final panel for this afternoon consists of the lead banks for raising the debt capital. Bank of America, Citicorp, Morgan Guaranty Trust, and Chase Manhattan Bank are represented.

Thank you very much, gentlemen. I believe we have Bank America listed first on our witness list unless you have a different suggestion, we will begin that way.

If you will identify yourselves for the record. We will make your written testimony a part of the record so if you wish to summarize, we will be delighted to here from you.

STATEMENTS OF H. ANTON TUCHER, VICE PRESIDENT, BANK OF AMERICA, N.T. & S.A.; ROBERT H. GRAHAM, VICE PRESIDENT, CITIBANK, N.A.; STEPHEN W. JENKS, VICE PRESIDENT, MORGAN GUARANTY TRUST CO. OF NEW YORK; AND STANLEY J. LEWAND, VICE PRESIDENT, CHASE MANHATTAN BANK, N.A.

Mr. TUCHER. Mr. Chairman, good afternoon. I am H. Anton Tucher, vice president of Bank of America, N.T. & S.A., one of four banks that's been asked to consider the financing of the Alaska gas line project and waivers requested by the President.

I should introduce my colleagues:

Robert H. Graham, vice president, Citibank N.A.; Stephen W. Jenks, vice president, Morgan Guaranty Trust Co.; Stanley J. Lewand, vice president, Chase Manhattan Bank, N.A.

Also joining us are: Michael A. Ross of the firm of Shearman & Sterling, the lead financial counsel to the group of banks, and Terence J. Collins of the firm of Littman, Richter, Wright & Talisman, the special regulatory counsel retained by the banks.

Each of the bankers has submitted his own prepared testimony. It will not surprise you that these statements cover considerable common ground.

Therefore, rather than each summarizing his statement, we will between us attempt to highlight the issues which we believe are most important. If it meets with your approval, we suggest that we first each make our initial comments and then respond to your questions as a panel.

It will probably be useful at the outset to clarify the role of our four banks in this project.

In late May, we were asked by the pipeline sponsors to review the outline of their financing plan and to consider a series of waivers proposed by them and intended to facilitate the financing.

Thus we are here today as prospective lenders and prospective lead managers of the debt financing.

We are not present lenders to the project in Alaska.

We are not financial advisors responsible for formulating a financing plan. We are reacting to a loan request presented to us by the sponsors.

I should also say that we are not equity investors. As lenders, banks are in the business of taking credit risks—risks that the borrowers and guarantors might not be able to meet their obligations to us, rather than taking direct equity risks such as completion.

This group of banks has been asked to give their professional assessment of what terms and conditions the world capital markets will require in order to make available to the project the unprecedented amount of money required for this project.

The purpose of our participation in these hearings is not to persuade or advocate, but simply to tell you what we believe it will take in practical terms to meet the requirements of the world capital markets.

I do not need to tell you that in the private market, the funding requirements for this project are truly monumental. The largest loan syndicated on a global basis, to my knowledge, is $6 billion—and that is to an AAA-rated corporate borrower.

Using the $27 billion capital cost estimate we have been given and the proposed 75/25 debt/equity ratio, the resulting $21 billion debt requirement is 3½ times as large as the largest loan syndicated up to this time.

A great deal has appropriately been made of the principle that this project must stand the test of economic viability. There has often been the inference that the ability to raise the debt is the test of economic viability. I suggest that this is only partly true.

Projects are economically viable if they can attract both the necessary debt and the necessary equity financing.

And they can obtain the necessary debt only if equity or other parties can provide creditworthy undertakings to repay the debt. These undertakings must be acceptable to the lenders.

And lenders must be satisfied that the project makes economic sense.

Projects are economically viable within a particular framework. For this project, this framework could in part be provided by Congress with these waivers. A reliable legislative and regulatory climate will be an important part of the framework within which lenders and equity investors will assess this project.

In my prepared remarks, I have outlined the scope of the work the banks have done in assessing the project, the conclusions we reached, and our bank's view of the waivers you are considering.

As my colleagues will tell you in more detail, the banks have not yet made a determination of the financability of the project.

We have neither been authorized to begin the necessary in-depth technical studies nor has it been determined whether adequate precompletion debt support can, in fact, be developed.

In regard to the waivers, let me simply say, speaking for Bank of America, that we support the waiver package as a means of facilitating private financing. While I cannot assure you that, with the adoption of these waivers, private financing can be arranged, I know of no practical way of obtaining private financing if the package should fail to be approved.

I will be glad to expand on my remarks in the question period.

[Testimony resumes on p. 519.]

[Mr. Tucher's prepared statement follows:]

STATEMENT OF

H. ANTON TUCHER
Vice President
Bank of America NT & SA

Mr. Chairman and Distinguished Members of the Committee--

My name is H. Anton Tucher. I am a Vice President of Bank of America NT&SA with responsibility for oil and gas pipeline, electric utility, synthetic fuel and alternate energy project financings. I am here today as a financial witness regarding the waiver package you are considering.

I appreciate the opportunity to appear before you today to discuss the financing of the Alaska segment of the Alaska Natural Gas Transportation System (ANGTS). The purpose of my testimony is to give you an overview, from a banker's perspective, of the problems and risks perceived by lenders in assessing the financeability of the Alaska segment, to indicate the types of assurances lenders can be expected to require before extending funds to this project, and to comment on the waiver package submitted to Congress by the President. My purpose is to inform, not persuade. Ultimately, the President and Congress must resolve the fundamental public policy issues involved in the requested waivers.

Let me say at the outset that I will focus my remarks principally on the Alaskan segment of the pipeline and the conditioning plant. I shall refer to this portion of the overall system as the project. You are aware that the Canadian segment will be separately owned and financed -- the lead financing responsibility presumably will be handled by Canadian institutions. The system in the lower 48 states has already been partially "prebuilt" and financed. The issues involved in the expansion and financing of the "lower 48" facilities required to carry the Alaskan gas have not yet been addressed by the bank group but the problems are clearly secondary to the issues confronting us in the Alaska segment.

Before I discuss specific issues involved in financing the Alaska segment, I would like to give you a very brief history of Bank of America's involvement in the project.

Bank of America has been involved with the pipeline sponsor group for the Alaskan Natural Gas Transportation System from the outset in 1976. For some time we served as commercial bank advisor on limited aspects of the project, particularly the types of tariff provisions needed to permit the pipeline to be project financed. This advisory relationship was terminated by mutual agreement in January 1980.

In late May 1981, we were asked, together with the three other banks represented here today, to review the financing plan presented to us by the sponsors with a view to making a substantial loan commitment for the project and arranging debt financing for the project as a lead managing bank. At the same time, we were asked to comment on a package of waiver requests prepared by the sponsors for submission to the President.

The essential parameters of the financing plan presented by the sponsors were as follows:

1. Capital costs on an "as spent" basis of $21 billion for the pipeline and $6 billion for the conditioning plant, with a completion assurance pool of an additional $3 billion.
2. A debt equity ratio of 75%/25%, and an equity split of 70%/30% between sponsors and producers.

3. The risk of non-completion to be covered by a "completion pool of funds", i.e., irrevocable commitments from lenders and no formal undertakings from creditworthy parties to assure debt repayment in the event of non-completion by a date certain and/or pre-completion abandonment.

During the summer, we began our review of the project. We looked at the questions of gas marketability, capital cost and technical feasibility of the project only to the point of considering how these questions should be studied in depth by the banks. We are in the process of identifying independent consultants to assist us in conducting technical studies necessary to evaluate the marketability of the gas, the capital cost estimates and construction programs, and the adequacy and deliverability of the gas reserves. While we therefore do not yet have an independent view on the technical and economic viability of the project, we are for the present operating on the assumption that the sponsors and producers - all responsible companies experienced in major energy projects - are proceeding with this project because, in their view, it is technically and economically viable. Independent verification of this assumption with the assistance of consultants retained by the banks can and will be made in due course in accordance with usual practice in major project financings.

To date, we have focused our investigation and analysis on three areas:

First, we surveyed on a global basis the likely availability of funds from the debt markets in amounts commensurate with the enormous size of this project. Without going into detail, let me say that we found that the debt requirements of this project are likely to test the limits of the world's capital markets. Just one set of numbers will illustrate the magnitude of the problem. The aggregate legal lending limits of the 100 largest banks in the United States amounted to approximately $4.7 billion at the end of last year. The next 200 banks collectively could lend only a maximum of $1.4 billion and are not likely to be a very significant source of funds. In mentioning legal lending limits, I should point out that banks lend up to their legal limits only to their best and most creditworthy customers. For most major banks, loans up to their legal limits are the exception rather than the rule. In an effort to manage and diversify the risks in their portfolios, many banks have self-imposed "house" or "policy" limits that are considerably smaller than their legal limits. It would be reasonable to expect that these house limits would be applied to this project.

The ability to raise the enormous amount of debt financing implicit in the $27 billion capital expenditure estimate will depend on several factors, the overall financing structure, the unquestioned strength of the credit being offered, the terms being sought and the condition of world financial markets. It will also depend on lenders' perceptions of the U.S. government's attitude towards this project. Lenders throughout the world will be looking for a reliable legislative and regulatory framework within which the financing can be arranged.

I wish I could be more definitive on the question of funding availability than to say that, under the right set of conditions, it may well be possible to raise the required amounts. However, because it will be necessary to obtain the participation of literally hundreds of the world's major lenders, the financing structure must be sufficiently strong to satisfy all of them.

Second, we analyzed the proposed financing structure presented by the sponsors. Our unanimous conclusion here was influenced very heavily by what we found in our funding availability study. To raise the required amount of money, the credit had to be very strong. Practically speaking, very strong means that lenders must be assured that there are creditworthy parties who have the financial capacity and incentive to assure timely project completion or, failing to accomplish completion by a date certain, have the financial capacity and obligation either to repay or to assume the debt in the event of non-completion. In the operating phase, the project must be capable of transporting a sufficient volume of gas, at a cost resulting in an assuredly marketable price; tariffs and tracking provisions must be unquestionably effective from the outset, and throughout the life of the financing; and these tariffs must generate a reliable cash flow to meet operating costs, interest and principal repayment obligations, normally with a margin of safety represented by return on and of equity.

We have given considerable thought to possible sources of credit support during the pre-completion phase. The banks were unanimous in their view that a completion pool of funds by itself did not provide sufficient assurance that the project could and would be completed on time. The size of the project relative to both the financial capacity of the sponsors and the size of the world capital markets is simply far too great; the risks and uncertainties inherent in the project are too large; and the size of any reasonably attainable pool of funds would be too small. We told the sponsors and producers that in the professional opinion of the four banks, the project could only be financed if lenders were assured that creditworthy parties had undertaken to assume or repay the project debt in the event of non-completion of the project by an agreed upon date.

The banks reported our findings during the first phase of our work in a letter to John McMillian dated August 28, 1981. We are submitting a copy to you with the request that it be incorporated in the record.

We have not yet begun detailed discussions with individual pipeline sponsors and producers about the amount or terms of equity and pre-completion debt support that each party is prepared to provide, but it is apparent that the development of sufficient pre-completion debt support from this group, given the $27 billion capital cost estimate, represents a major challenge that will require considerable negotiations among the various parties.

Third, we considered the waivers presented to us by the sponsors. As I indicated, the banks' involvement with the waivers of law as a means of resolving lenders' concerns previously identified began in late May of this year when we were asked to comment on the proposed set of waivers prepared by the pipeline sponsors. We provided our views on that set of proposed waivers in our letter to John McMillian of June 3, 1981. A copy of the letter is being submitted to you for incorporation in the record. We identified certain of the waivers as being of particular importance in facilitating the financing. As I will discuss later in more detail, we also suggested that the waiver request in regard to the commencement of billing under the tariff should preserve flexibility as to the possibility of further segmenting the Alaskan segment for commencement of billing or of establishing some other basis of earlier billing commencement as to some or all charges.

During June and July, we met with a number of Administration and Congressional principals and staff members to explain the banks' views on the waiver package. I think that it is important to point out that all the waivers included in the President's request were included in substantially the same form in the original package which was given by the sponsors to the banks in May. That package at that time also included items not now before you for consideration. None of the waivers originated with the banks.

With this background, let me now turn to the specific waivers being requested. Let me reiterate my purpose is not to persuade or to advocate but simply to tell you how the various provisions affect the financeability of the project, as we understand them.

I will focus my comments on waivers concerning producer ownership participation, billing commencement date, and authority to modify or rescind orders. These are the waivers which we believe have the most direct impact on lenders. The remaining waivers affect the financing but indirectly.

Producer Ownership Participation

In our judgment, producer participation in the equity of the project will significantly facilitate the financeability of the project. Lenders will understandably be very concerned that the ownership group have the financial capacity to assure timely completion and to provide necessary pre-completion debt support. The substantial equity participation by the three producer companies adds substantial financial capacity and thus important comfort to the lenders. Furthermore, we had it explained to us that the producers' willingness to provide any formal pre-completion debt support would be strictly on a pro-rata basis relative to their share of ownership vis-a-vis the pipeline sponsors. Thus, since the existing pipeline sponsor group does not have the capacity to provide all the necessary pre-completion debt support and insufficient support appears to be available from other sources, significant producer involvement in the equity and pre-completion debt support arrangements would seem to be practically essential. For that reason, we support the waiver to permit producer ownership participation in the project.

Billing Commencement Date

A number of fairly complex, distinct but related issues come into play here. Understandably, therefore, this waiver has caused the greatest misunderstanding. There appears to be misunderstanding of its purpose and effect, and misunderstanding of the position of the banks.

Let me first tell you what we understand the present waiver request would and would not accomplish for lenders to the project. For tariff purposes, it would essentially divide the project into two segments in Alaska, the conditioning plant and the pipeline. It would authorize the FERC to approve tariff arrangements that would permit minimum bill charges, for operating costs, actual taxes, and debt service payments (principal and interest), relating to either of these two Alaskan segments, to commence after a date approved by the FERC, and upon completion of that segment. It would not, however, provide lenders for either portion of the project protection against the risk of non-completion of the portion to which they are lending. All that it would provide is protection against the risk of non-completion of the other Alaskan portion, or of the Canadian segment, or of other facilities needed to ship gas through the system. In our judgment, this limited protection against non-completion of facilities other than those being directly financed is, in practical terms, essential to permit private financing. Lenders will certainly not assume the risk of non-completion of other facilities. We see no creditworthy private party - not the pipeline sponsors or producers, nor the Canadian sponsors - who could reasonably be expected to assume this risk. Financial capacity limitations and considerations of prudence preclude this possibility.

Three additional points regarding this requested waiver should be made.

First, while this waiver provides limited protection to lenders, equity owners will have to wait until the total system is completed before the tariff provisions for return on and of equity come into force.

Secondly, it should be pointed out that this waiver is not a total departure from the present situation. Under existing law and FERC orders, the tariff relating to the Alaskan facilities is set to begin charges to the consumer once the system is completed and commissioned, but without the necessity of gas actually flowing. As things stand now, without the proposed waivers, the pipeline tariffs begin to operate even if gas cannot flow because the plant or gathering facilities have not been completed. The billing commencement waiver with regard to the Alaska project segments largely restores the situation that exists without the waiver change that incorporates the plant into the ANGTS.

The third point concerns the impact of a separate billing commencement date for Canada on the financing of the Alaskan facilities. The basic purpose of this provision is to facilitate the financing of the Canadian segment. This aspect is appropriately addressed by other witnesses, but from the perspective of a lender to the Alaskan project one can say that separate Canadian billing commencement will directly facilitate financing of the Alaskan project facilities. By facilitating the Canadian financing, it should remove one area of uncertainty for the Alaska financing.

At this point, you might reasonably ask just how large the risk of non-completion of the various segments is in the perception of lenders, and exactly what assurance anyone can have that the overall system will in fact be completed. As I mentioned, the banks have not yet made an in-depth review of the construction plans, and I have no testimony on the precise risk of non-completion. I can, however, assure you on two points. We will not go forward until we have done a "due diligence" investigation to satisfy ourselves on the technical, economic, financial and regulatory feasibility of completing the whole system. Secondly, even if the present waiver package is approved, no lender or equity owner in any segment would have any reason to proceed with his individual segment unless he were satisfied that his segment will in fact be completed. No money would be available from the tariff to lenders or equity owners unless their segment is completed.

Many distinguished Members of this Committee will probably be aware that the banks have strongly suggested to the sponsors, and in conversations with Administration and Congressional officials and staff have urged, that the waiver package preserve flexibility to permit some form of pre-completion billing commencement in Alaska beyond that contemplated in the present waiver request that would provide some form of consumer risk-taking or actual tariff charges to commence prior to completion of the Alaskan segment. A memorandum dated July 13, 1981, briefly outlining the banks' views on the early billing commencement issue, was supplied to Administration officials and to Committee Staff in both houses. A copy of this memorandum is submitted for inclusion in the record. We continue to believe that the delegation of authority to FERC to permit some limited but expanded form of pre-completion billing commencement would have been enormously helpful in facilitating private sector financing. With Congressional approval of the present narrower billing commencement waiver, the task of developing the needed pre-completion debt support will be far more ambitious. I cannot overemphasize the magnitude of the challenge that faces the sponsors and producers in this regard. We will work with them. I wish I could give you assurance that we will succeed. All I can say is that without the requested waiver, as a practical matter, private financing cannot be arranged, and that with it we will give it our very best try.

Authority to Modify or Rescind Orders

So long as lenders to the project can look for payment of interest and repayment of principal after completion of the ANGTS solely to the project's ability to generate the necessary cash flows from charges passed on through the FERC approved tariff arrangements, including the tracking provisions by the individual shipper pipeline companies - and we know of no other practical source of post-completion credit support - lenders will lend only if they have confidence that they can rely on these FERC approved tariffs throughout the life of their loans. We have read with interest the recent opinion of the General Counsel of the FERC dealing with the present state of the law.

While it is true that lenders, including this bank, have on occasion been willing to assume this type of regulatory risk in much smaller transactions, those transactions are so different, both in size and in the nature of the underlying situations, as to make those cases, in our opinion, practically irrelevant for this project. To raise the required amounts of money in the capital markets of this country, and particularly abroad, will require the elimination of what has come to be known as "regulatory risk." In my opinion, this makes adoption of the requested waiver in this regard absolutely mandatory if private financing is to be arranged.

It is important to point out here that neither commencement of billing under a tariff nor regulatory certainty of that tariff will guarantee lenders payment of any money. They simply provide a reliable regulatory framework within which contracts may be made. Performance under these contracts and the marketability of the gas involve risks that lenders must appraise in order to determine the acceptability of the credit.

I have focused my comments on those items of the waiver proposal which we view as the most critical for achieving private financing of the project. The remaining items, some of which are of a purely technical nature, may each add perceptibly to the feasibility of attaining private financing for the project, either by facilitating the certifications for the project as with the evidentiary hearing waiver, or by necessary clarifications as with the regulatory status of the project as a natural gas company. However, from a lender's standpoint, they are clearly overshadowed by the importance of the three items I have discussed today. I cannot emphasise enough that without approval of these waivers, private financing for the project is not possible. On the other hand, I cannot tell you that approval of the waivers will assure private financing for the project. What the waivers will accomplish is to provide a framework within which negotiations can continue in an effort to structure a financing plan which will be acceptable to the various interested parties including the literally hundreds of the world's major lenders necessary to finance the project.

Thank you. I would be happy to respond to any questions you may have.

STATEMENT OF ROBERT H. GRAHAM

Mr. **Graham**. Good afternoon, gentlemen. I was hoping for a while I would be saying "Good morning." I could have spent more time on this material.

My name is Bob Graham. I am a vice president of Citibank and have responsibility for the bank's lending activities to the regulated energy businesses located in the Western two-thirds of the United States.

I would like to briefly summarize the activities of the banking group in connection with the financing of the Alaskan gas pipeline project since we were with a "financing plan" by the Alaskan Northwest partners in May of this year.

The "financing plan" presented to us by Alaskan Northwest has essentially the following elements of significance to prospective lenders:

One, the necessary financial commitments to the project are calculated on the basis that capital costs, on an "as spent" basis, would be $27 billion.

Two, 70 percent of the equity would be contributed by the Alaskan Northwest partners and 30 percent would be contributed by the producers, with each group responsible for arranging an equivalent percentage of the project's debt.

Three, the debt-to-equity composition would be 75 percent debt, 25 percent equity.

Four, over and above the $27 billion, there would be a "completion assurance pool" of $3 billion to be funded by the sponsors and producers on the 70 to 30-percent basis.

There is no provision for any further completion support such as traditional completion guarantees by creditworthy parties to assure debt repayment in the event of noncompletion.

We have not yet been advised of the individual percentages of ownership to be held by each sponsor and producer.

During the first 2 weeks in June, the bank group held its first meetings, and decided to divide its preliminary work into two phases.

During phase 1, we would conduct a preliminary review of world capital markets and present our initial assessment of the amounts and of the basic terms on which we believe funds from these sources might be available.

During phase 2, we would carefully assess the project engineering, gas supply, gas marketability, financial modeling and funding with a view to developing a summary of terms and conditions to be negotiated with the sponsors, and, if mutually agreeable, presented to potential lenders.

Phase 1 of our work was completed in August and was reported in a letter dated August 28. In September, we met with the sponsors to discuss the results of our work, including the conclusions reached in our preliminary study of world capital markets and of applicable funding conditions.

The testimony which we have submitted to you today details our methodology and the assumptions on which our study was based.

Our basic conclusions were:

One, the ANGTS will be viewed by lenders as essentially comparable to a single borrower since it is our understanding that the financing for each segment will basically rely on a common source of repayment after completion—the tariff arrangements with the Alaskan gas shippers.

Two, there is approximately $12 to $18 billion of funding available for any one borrower that is considered by prospective lenders as the risk equivalent of a Baa credit.

Three, the bulk of the funds necessary for construction of the project cannot be raised on the "completion pool of funds" basis as presented to the banks for their consideration; this concept results in the banks and other lenders essentially taking an "equity" risk and does not meet the credit criteria required.

We, therefore, advised Alaska Northwest that a private sector financing would require: Debt repayment assurances during the precompletion phase from creditworthy parties, which, in our view, could be provided by a combination of the beneficiaries of the project, for example, sponsors, producers, royalty owners, consumers; after completion, acceptable tariff arrangements including tracking provisions approved by the Federal Energy Regulatory Commission; and technical and economic feasibility.

In summary, and I quote from the August 28 letter:

> If the required credit support can be arranged, the banks are of the opinion that a modified plan may well provide the basis for private-sector financing of the project.

In this regard, we understand that intensive negotiations have, and are continuing to take place among the project principals. We are not, however, in a position to advise you with respect to the details of these negotiations since we are not a party to them.

We are no more current on this than you, given the testimony yesterday and today from the sponsors and producers.

The banks will be meeting shortly with Alaskan Northwest with a view to learning the status of these negotiations and to arrange phase 2 of our work.

Obviously, the results of your determinations will have a significant impact on any future activities. My prepared remarks support the waivers requested as being necessary or extremely beneficial in the development of a financing plan for the project consistent with the approach presented to us by the sponsors.

That is the end of my remarks. Thank you.

[Testimony resumes on p. 538.]

[Mr. Graham's prepared statement follows:]

STATEMENT OF

ROBERT H. GRAHAM
Vice President of Citibank, N.A.

Mr. Chairman and Members of the Committee:

My name is Robert H. Graham. I am a Vice President of Citibank, N.A. and have responsibility for the Bank's lending activities to the regulated energy businesses located in the western two-thirds of the United States.

The prepared remarks in this statement are intended to briefly summarize the activities Citibank has participated in, with the other three Banks represented here, regarding the financing of the Alaskan Gas Pipeline Project since we were presented with a "financing plan" by the Alaskan Northwest partners in May of this year. This includes comments on the group of waivers submitted by the President. Together with Bank of America, we previously served as a commercial bank advisor on limited aspects of the Project. This advisory relationship was terminated by mutual agreement in January 1980.

My remarks represent solely the views of Citibank, as each of the other three participating banks will be providing its own prepared comments.

I. Role of the Banks
II. Financing Plan Review
III. Waiver Proposals
IV. Specific Waivers
V. Funding Availability

I. Role of the Banks

Alaskan Northwest has asked the four Banks represented here today to play two separate but related roles in the development of the financing of the Alaskan Natural Gas Transportation System (ANGTS):

First, each of the Banks has been asked to consider the concepts underlying the "financing plan" presented to it by the Alaskan Northwest partnership for the financing of the Alaskan component (the Project) of the ANGTS and whether, based on these concepts, it could participate in a significant way as a lender to the Project, and

Second, each Bank has been asked to consider and to advise Alaskan Northwest as to whether, in the Banks' view, the "financing plan" would serve as an adequate basis upon which to raise the amount of debt required by the partnership to finance the Project.

Implicit in our consideration of these issues was the understanding that the Banks would respond to Alaskan Northwest outlining fundamental conditions needed to finance the Project whether or not the "financing plan's" concepts were acceptable in their entirety; this response would be consistent to the extent possible with the private sector financing approach.

The Banks were not engaged as "financial advisors" to Alaskan Northwest as one may broadly define that role. Our "advisory" function has essentially covered the roles outlined above, although we have also suggested modifications to the "financing plan" related to the obtaining of bank debt financing for the Project.

Citibank views its role primarily as a prospective lender, and a significant one, to the Project; secondarily, and as a consequence of its possible willingness to be a significant lender to the Project, as a lead manager in the arrangement of financing for the Project from the domestic and international capital markets. We should not be viewed as an investor in the Project who would be expected to assume equity-type risks.

The concepts underlying the "financing plan" presented to us by Alaskan Northwest are embodied in a letter dated May 19, 1981 addressed by Northwest Alaskan to the three producers (Arco, Exxon, Sohio); it has essentially the following elements of significance to prospective lenders:

(1) The necessary financial commitments to the Project are calculated on the basis that capital costs, on an "as spent" basis, would be $27 billion.

(2) 70% of the equity would be contributed by the Alaskan Northwest partners (the "sponsors") and 30% would be contributed by the producers, with each group responsible for arranging an equivalent percentage of the Project's debt.

(3) The debt to equity composition would be 75% debt, 25% equity.

(4) Over and above the $27 billion there would be a "completion assurance pool" of $3 billion to be funded by the sponsors/producers on the 70%/30% basis. We were further advised that there was to be no completion support beyond the foregoing, such as traditional completion guarantees by creditworthy parties to assure debt repayment in the event of non-completion.

We have not yet been advised of the individual percentages of ownership to be held by each sponsor and producer.

We undertook the assignment asked of us knowing full well that the magnitude and apparent complexity of the financing is unprecedented. We also knew that the "financing plan" presented to us represented only a set of concepts outlining a financing approach to the Project agreed to by its principals. Our willingness to take on the assignment was conditioned to a large degree by the reputation of the companies supporting the Project and by the significance of the Project's natural gas supplies to the country's domestic energy resources.

We have been and we continue to be impressed with the significance of this Project in adding the North Slope natural gas reserves to the energy supplies of the United States. While we have not made a value judgment as to whether the Project is in the "national interest," others who are more competent to do so than I have made that judgment and have provided substantial encouragement to its development.

In addition, the sponsoring companies to this Project, and here I include the producers, are highly reputable concerns which have extensive experience in the development of major energy supply projects; they have made, and are prepared to make, a substantial financial commitment to the Project; while I will as a potential lender evaluate their respective financial capabilities to undertake their commitments to the Project, and test the premises on which the feasibility of the Project is based, I would only do this as part of a thorough and substantive review of their creditworthiness and of the Project's fundamentals. I view this as standard operating procedure for a prospective lender.

In summary, being asked by this group of companies to work on the financing of this Project is an opportunity and challenge which has been, and will be, responded to by Citibank's best endeavors.

II. Financing Plan Review

We understand that sometime in May, the sponsors and the producers concluded their discussions regarding the concepts underlying the "financing plan" which I have just described and agreed that it should be presented to the financial community.

Then, during the last week in May, Alaskan Northwest had separate meetings with each of the Banks to present a "project overview." The "project overview" included presentations by company people, as well as presentations by their financial advisors, engineering, marketing and other consultants.

It was at this meeting that each Bank was given the May 19th letter which set out the financing concepts agreed to by the sponsors and the producers, and was asked to consider a possible role as a lead lender to the Project. Shortly thereafter, each Bank was also given a draft of a proposed waiver package which the sponsors and the producers were in the process of considering, and was asked if it would review the waiver package and give Alaskan Northwest any comments that it might have on the proposal.

During the first two weeks in June, the Bank group held its first meetings, discussed how to proceed, and drafted a joint engagement letter which was sent to Northwest Alaskan on June 18th.

The engagement letter outlined the Banks' understanding of the Project, the purpose and scope of our proposed involvement, and the approach which we expected to follow in analyzing the material made available to us by the Project companies.

We proposed to divide our preliminary work into two phases:

During Phase I, we would conduct a preliminary review of world capital markets and present our initial assessment of the amounts and of the basic terms on which we believe funds from these sources might be available. We would begin to develop an approach to enable us to assess the project engineering, gas supply and gas marketability information developed by the Project companies, as well as the financial modeling work done by them. We would also identify consultants to assist us in a detailed review of this information in Phase II of our work, briefly described below.

Phase I of our work was completed in August, and a letter summarizing our conclusions, which we are submitting to you today with the request that it be incorporated in the record of these proceedings, was sent to Northwest Alaskan on August 28, 1981. In September, we met with the companies to discuss the results of our Phase I work, including the conclusions reached in our preliminary study of world capital markets and of applicable funding conditions; these conclusions are:

(1) The financing of all segments of the Alaskan Natural Gas Transportation System must be viewed for credit purposes as an interrelated program and must be carefully coordinated. The System will be viewed by lenders as essentially comparable to a single borrower since it is our understanding that the financing for each segment will basically rely on a common source of repayment — the tariff arrangements with the Alaskan gas shippers.

(2) There is approximately $12-18 billion of funding available for any one borrower that is considered by prospective lenders as the risk equivalent of A/Baa credit. This estimate contemplates an amount of $4.5 billion to $6 billion from the private U.S. capital markets.

(3) The bulk of the funds necessary for construction of the Project cannot be raised on the "completion pool of funds" basis as presented to the Banks for their consideration; this concept results in the Banks and other lenders essentially taking an "equity" risk and does not meet the credit criteria required.

(4) The Project, to be financeable in the private sector, will require:

- debt repayment assurances during the pre-completion phase from creditworthy parties; in our view these could be provided by a combination of the beneficiaries to the Project, e.g., sponsors, producers, royalty owners, consumers,
- after completion, acceptable tariff arrangements including tracking provisions approved by the Federal Energy Regulatory Commission, and
- technical and economic feasibility.

In summary, and I quote from the August 28th letter, "if the required credit support can be arranged, the Banks are of the opinion that a modified plan may well provide the basis for private sector financing of the Project."

The Banks are now meeting with Alaskan Northwest to review consultants and to commence Phase II of our work. Phase II would involve an in-depth study by the Banks of gas supply, project engineering, gas marketability, financial modeling and funding with a view to developing a summary of terms and conditions which would be mutually agreeable and could be presented to potential lenders.

In addition, the Banks understand that intensive negotiations have taken place among the Project principals, dictated in large part by the expression of our views that modifications to the sponsors' financing concepts would be necessary. We are not in a position to advise you with respect to the details of the negotiations which have been, and we understand are presently being, conducted since we are not a party to those negotiations.

III. Waiver Proposals

I would like to refer to the sponsoring companies' request that, as a part of our consideration of the proposed "financing plan," the Banks review and comment on the waivers.

At the end of May, Alaskan Northwest gave the Banks a draft of waivers to review with the request that we give them any comments that we might have. We forwarded our comments on those waivers which we believed would be of particular concern to lenders to the Project to Alaskan Northwest in a letter dated June 3rd which we are submitting to you today with the request that it be included in the record of these proceedings.

During the months of June and July, at Alaskan Northwest's request, the Banks had several informal discussions with staff of the executive branch and both houses of Congress to explain our views on the waivers. In that connection, we circulated a memorandum dated July 13th outlining our views on the billing commencement date issue because we felt that there was confusion regarding the Banks' position on this issue. Our July 13th memorandum is being submitted to you today with the request that it be included in the record of these proceedings.

In keeping with our role, we have analyzed the proposed waivers from the standpoint of their impact on the financing approach contained in the "financing plan" proposed by the sponsors and the producers. And, because of the preliminary nature of the concepts of the "financing plan" presented to us, and our initial response to it, our view of the waivers necessary to implement aspects of that plan must, as a practical matter, be a broad view which would permit maximum financing flexibility.

IV. Specific Waivers

There are four waivers in the group under consideration on which I would like to comment. These are the waivers which deal with:

(1) Producer ownership participation;
(2) Inclusion of the conditioning plant in the overall system;
(3) Regulatory certainty; and
(4) The billing commencement date.

The need for the balance of the waivers appears to be sufficiently self-evident so as not to require our comment.

(1) Producer Ownership Participation

The Bank is of the view that the credit of the sponsors is insufficient to raise the amounts needed to fund the dollar magnitude of the Project, and therefore substantial producer participation will be required if the financing is to be arranged in the private sector. The proposal which the sponsors and producers have asked us to consider provides for an equity interest by the producers; we understand that producer participation is conditioned on their having an equity interest in the Project.

(2) The Conditioning Plant

The sponsoring companies have presented to us a financing requirement that is predicated on the conditioning plant being an integral part of the Alaskan segment of the Alaskan Natural Gas Transportation System and subject to the same financing conditions. As such, our view is that it should be covered by the certificate and tariff and tracking provisions ultimately determined to be appropriate by the Federal Energy Regulatory Commission (FERC) for the Alaskan facilities. Further, it is impractical to consider financing of the Alaskan pipeline if the conditioning plant is subject to uncertainties of ownership, financing and integration of construction and operation in the System.

(3) Regulatory Certainty

Regulatory certainty -- at two levels -- is necessary to the financeability of the Project;

First, to ensure that the Alaskan Northwest tariff which is put in place at the outset, and on which lenders and others will rely in making their commitments, will not be changed; and Second, to ensure that tracking provisions are in place from the outset which permit the shippers of Alaskan gas to recover their cost of gas and transportation charges from their customers on as current a basis as possible and that, once these provisions are in place, they will not be changed.

The opinion of the General Counsel to the FERC confirms the advice which we have received from our own counsel on the subject of the FERC's ability to alter regulatory decisions on which lenders and others may have relied. We would not accept the tariff arrangements proposed to us as the security for repayment of our loans to this Project without this waiver.

(4) The Billing Commencement Date

We have previously expressed our views on the desirability of providing for billing to commence under the tariff for the Alaskan segment of the Project prior to the "completion and commissioning" of the entire Alaskan Natural Gas Transportation System in a memorandum dated July 13th, entitled "Summary of Bank Views on Early Billing Commencement Issue."

As I understand the billing commencement waiver, it would permit the FERC to approve a tariff which would permit the commencement of billing for each of three segments — the Canadian facilities, the Alaskan pipeline facilities, and the conditioning plant — upon each segment's completion but not before a date established by the FERC as a reasonable date for completion of the entire ANGTS system. Billing could commence for any one segment even if either or both of the other segments were not yet complete.

From our prior discussions with some of you and with your staff, and as you will note from our memorandum, we, as prospective lenders, would have preferred a billing commencement waiver with terms which would permit maximum flexibility and maximum discretion within the FERC to approve, or disapprove, tariff provisions which would accommodate the details of a private sector financing.

The proposed waiver will restrict our ability to finance the Project, but we understand the degree of flexibility which we have sought, and continue to feel is desirable, is not attainable.

While it is my considered opinion that the proposed billing commencement waiver will be of significant help in the continued development of the financing program for the Project, whether it will be sufficient remains to be judged from the outcome of the negotiations among the sponsors and the producers, and between the sponsors and prospective lenders.

Based on my current knowledge of the financing plan for the Project, and applying some realistic expectations, I can only say that having this billing commencement waiver is significantly better than not having it.

The added uncertainties - that is to say greater risks - which would be the result of not having this waiver are not likely to be readily or easily borne by any of the private sector parties to the transaction.

V. Funding Availability

As part of Phase I of our work, we were asked to determine the amount of funds that might be available in world capital markets for any one project. Although we were asked to look at the financial requirements for the Alaskan segment of the Project, it became apparent to us during the course of our study that it would be necessary to consider the financing requirements of the Canadian segment and the "lower 48" segments as well.

The financing for each segment of the ANGTS, as well as the financing for the expansion of the "lower 48" segments and the refinancing of the prebuilt segments, will rely on a common source of repayment, i.e., the tariff arrangements. Lenders can therefore be expected to consider these financings as one credit for risk and funding allocation purposes.

The funding study was done by geographic region, namely the United States, Canada, Europe, Middle East, Asia and Latin America. It was based on an in-depth review of the legal and policy limits of the banking community in each geographic region, the potential interest of non-bank institutional lenders and the historical lending policies of the suppliers and export credit agencies in each country based on the potential equipment sourcing submitted to us by Northwest Alaskan.

The study was, of necessity, based on certain assumptions:

(1) The project/borrower was not identified, but was stated to be the risk equivalent of debt with a medium grade investment rating (A/Baa). A medium grade investment rating assumes adequate credit support, including completion guarantees from creditworthy parties.

(2) The pricing (i.e., interest rate) would be fully commensurate with the risk involved.

(3) There would be a high level of participation by U.S. commercial banks (in order to insure high commitment levels from other geographic sectors).

(4) Use of foreign sourced goods would be maximized to increase the total financing available from suppliers and export credit agencies. A correlation exists between the exports from a country and the amount of credit indigenous banks are willing to extend.

(5) The financing of the Alaskan and Canadian segments would be efficiently coordinated. Our findings indicate that the degree of Canadian participation in the financing of the Alaskan segment is directly related to the degree of U.S. and other non-Canadian participation in the financing of the Canadian segment.

(6) There would be some reduction in the amounts available from commercial banks to the extent that prime bank guarantees are required to obtain export credit facilities.

The study concluded that $12-18 billion may be available in world capital markets to fund any one project. These amounts are broken down by geographic area in Exhibit I, which is attached. The estimated amounts in the first column are based on a relatively conservative application of the assumptions described above, while the estimated amounts in the second column are based on a much more optimistic view of our assumptions.

The survey was initially structured to segment the market in terms of the amounts available for 5 year commitments, 5 to 10 year commitments and 10 to 15 year commitments. The study concluded, however, (1) that 10 years (and, in a few instances, 12 years) would be the maximum overall term available from the commercial banking market, and (2) that, within each market, it might be necessary to offer a variety of terms and average lives in order to obtain the maximum amount of funds. In addition, the study concluded that, in order to insure the maximization of funds from each market, the project must be perceived as possessing national interest status, preferably through formal U.S. governmental pronouncements. The significance of this is best appreciated when the $4.5 billion to $6 billion of funding estimated to be available from the private U.S. capital markets is set against the total capital requirements of the Project.

We found that improving the credit quality of the project/borrower would neither greatly increase the amount of available bank financing nor lengthen maturities significantly, whereas reducing the credit quality below an equivalent of A/Baa would substantially reduce both the amount of available funds and the average life of the financing.

This concludes my statement. I would be prepared to respond to any questions that you may have.

EXHIBIT I

FUNDING ESTIMATE SUMMARY IN THOUSANDS OF U.S. DOLLARS

U.S.		
Commercial banks	$3,000,000	$3,500,000
Institutional lenders	1,500,000	2,500,000
Canada		
Commercial banks	2,500,000	3,000,000
Europe		
Commercial banks	3,500,000	4,000,000
Middle East		
Commerical banks	500,000	500,000
Asia		
Commercial banks	1,800,000	2,400,000
Latin America		
Commercial banks	150,000	250,000
	$12,950,000	$16,150,000
Export Credit Facilities	1,700,000	1,700,000
	$14,650,000*	$17,850,000

* Could be reduced by $2.5 billion if Canadian participation does not materialize - See Assumption #5.

Mr. **Sharp**. Thank you very much. We will have to break and go to a vote on the House floor.

We will return hopefully within 10 minutes so, we will have a brief recess. I am sorry, there is a possibility we may end up having a vote following this vote, which throws us into 25 minutes, if that is the case, we will not know until this one is completed.

But we are down to about 10 minutes, so I think we are going to have to break. So hopefully we will be back very quickly here.

Thank you.

[Brief recess.]

Mr. **Sharp**. The committee will please come back to order. We may face another vote before too long, so I thought we would definitely try to finish this evening and see if we can get further on in the testimony. A few of our members I think do have a couple questions.

STATEMENT OF STEPHEN W. JENKS

Mr. **Jenks**. My name is Stephen W. Jenks, and I am a vice president of Morgan Guaranty Trust Co. of New York. Morgan Guaranty is one of four banks retained by Northwest Alaskan Pipeline Co. on behalf of the pipeline sponsors—hereinafter referred to as sponsors—to review the sponsors' financial plans and the capacity of the world capital markets and, ultimately, to consider being a lender and a lead manager for the financing of the Alaska segment of the Alaska Natural Gas Transportation System—hereinafter referred to as the project.

We were also asked to comment upon certain waivers of law designed to facilitate private financing of the project which had been prepared by Northwest Alaskan for consideration by the administration. During the course of our engagement, which began in June of this year, we have had discussions with the sponsors and with the three oil companies who have been proposed as equity participants in the project, hereinafter referred to as producers. We have also had numerous meetings with Northwest Alaskan.

Based upon these meetings, our initial evaluation of the international financial markets, the financial arrangements currently being discussed between the sponsors and the producers and our professional judgment as bankers, we support the package of waivers which the President has submitted to you as a necessary element for raising private financing for the project—that is financing without U.S. Government funds or guarantees. We cannot say at this time whether the waiver package is sufficient to assure private financing for the project, but we believe that it is a pre-condition to any successful private financing plan.

We support the entire waiver package, but we wish to highlight three of its elements which we consider to be of particular importance to lenders:

1. PRODUCER OWNERSHIP PARTICIPATION

In our judgment, the credit capacity of the existing sponsor group is insufficient to attract the necessary funds to complete the project. We feel that an ownership interest in the project by the producers would constitute an important additional element of credit support for the project. Accordingly, we support the waiver necessary to permit such ownership.

2. REGULATORY CERTAINTY

Any private financing plan for this project will require lenders to rely upon the tariffs and other orders issued by the Federal Energy Regulatory Commission. Borrowings required for this project will be several times greater than the private sector has provided for any single project in the past, and the involvement of both United States and foreign lenders will be essential. In our judgment, lenders will be unwilling to advance substantial funds if there is a risk of a regulatory agency changing the tariff provisions and other crucial regulatory aspects of the project after funds have been committed. After completion of the Alaska Natural Gas Transportation System, cash flow generated through tariffs will be the only source of funds for debt repayment.

It is therefore important that regulatory certainty be provided. Regulatory certainty is needed both with respect to the tariffs charged by the pipeline companies to shippers of gas and with respect to the tariffs charged by those shippers to their customers. This will not only remove a major risk but will also provide lenders with the additional comfort of knowing that the United States considers the project to be of sufficient national importance to remove administrative and regulatory impediments.

3. BILLING COMMENCEMENT

We support the provision in the waiver package that would permit the commencement of billing for the Alaska pipeline segment and the conditioning plant segment before the completion of the entire Alaska Natural Gas Transportation System, including the Canadian segment. However, we cannot now say that this provision is adequate to attract private financing.

Our concern stems from the unprecedented size of the project, the limits on the financial resources that can be committed by sponsors and producers and the capacity of the world capital markets. As we advised the sponsors in our letter of August 28, a copy of which is furnished herewith, in order to raise from $12 to $18 billion for the project from private institutions, the loans must be supported by credit-worthy parties at all times. Such credit-worthy parties include sponsors, producers, consumers through a tariff mechanism, and other beneficiaries of the project.

Until we have seen how much each producer and sponsor proposes to commit in equity and debt support and have determined whether or not those amounts are within each sponsor's and producer's financial capacity, we cannot say to what extent and for what periods support must be available from other credit-worthy parties, including consumers. For example, it could be necessary to have other billing provisions which would reduce the overall financing needs of the project. Therefore, until a definitive financing plan has been developed, we cannot be sure if the billing commencement provision in the waiver package will be adequate.

In conclusion, we support the waiver package as a necessary step in the process of raising financing for the project without U.S. Government funds or guarantees. Whether or not this package will be sufficient to insure such financing, we are unable to say at this time.

This concludes my statement, and I would be happy to answer any questions that you may have.

STATEMENT OF STANLEY J. LEWAND

Mr. LEWAND. Mr. Chairman and members of the committee, my name is Stanley Lewand, and I am a vice president of the Chase Manhattan Bank.

I head up the Public Utility Division of Chase, which is responsible for Chase's involvement in the financing of gas and electric projects in the United States.

We are hopeful that if the Congress permits the proposed waivers to become effective, the private participants in the project may be able to reach agreement upon the level and degree of equity and credit support which each can contribute. In our opinion, this waiver package will be the straw that stirs the drink and will permit uninhibited negotiations among the sponsors and producers and will allow them to reach agreement on an allocation of equity and credit responsibility which would further the process of trying to arrange the financing of this project.

We have been most interested in the testimony of the producers and in their statement that they are prepared to provide their share of equity and debt support to a maximum of 30 percent of the project. Until the sponsors submit a definitive financing plan to the banks providing the credit support necessary for the private financing of the project, we do not know whether the total level of support proposed will be sufficient to assure the successful financing of the project.

I would emphasize that the views of lenders must be understood in the context of the economic size and complexity of this proposed financing. It is awesome in scope. In a credit of this size the borrowing of $3 of debt for each $1 of equity becomes an even more formidable proposal. It causes us to be even more mindful of the need for the backing of this project by significant credit substance. Strong credit support is needed to permit us to make loans which would be deemed prudent and which would be consistent with our legal responsibilities as banking institutions.

I feel very strongly that this project is in the national interest as a major means of reducing our reliance on imported oil. In my opinion, this project becomes increasingly important to the security interests of this Nation as each day passes.

I hope we all, the Congress, pipelines, producers, and lenders can find a way to finance it. The national interest fuels our bank's interest in the success of the project, but, of course, cannot substitute for the need for strong credit support to permit the banks to make prudent loans.

Our assessment of the national interest also cannot override the obstacles which exist to the bank's taking of equity positions and equity risks in this project.

The legal lending and policy limit of U.S. banks will require that a major part of the financing of this project be derived from foreign banks. These banks will make their own assessments of the creditworthiness of the supporters of the project, the economic feasibility of the project and the national commitment to this project. And while we have been characterized as beady-eyed, be assured the foreign lenders will be steely-eyed. They are likely to be unimpressed by our personal judgments as to the national interest. All lenders must be assured of the constancy of this Nation's regulatory and legislative bodies.

We hope that the results of these hearings will provide a loud and clear signal to the financial communities of the world expressing the determination of our Nation with regard not only to this project, but also to at least a partial solution of our energy problems from domestic energy sources.

The Chase Manhattan supports the energy package, and I thank you.

[Testimony resumes on p. 609.]

[Mr. Lewand's prepared statement and a composite submission by the panel follow:]

STATEMENT OF

STANLEY J. LEWAND
Vice President
The Chase Manhattan Bank, N.A.

Mr. Chairman and members of the Committee. My name is Stanley J. Lewand and I am a Vice President of The Chase Manhattan Bank. I head up the Public Utility Division of Chase, which is responsible for Chase's major involvement in the financing of gas and electric projects in the United States. I have been responsible for the Chase public utility area for 13 of my 44 years with Chase.

While Chase has followed the progress of this project from its inception, we were formally retained by the gas pipeline sponsors in May of 1981 to review the plan for the financing of the Alaskan segments of the Alaska Natural Gas Transportation System (ANGTS), to provide advice on funding the Alaskan segments in the world capital markets, and to comment on certain requests for waivers of law which were being submitted by the sponsoring group to the Administration. Our advice to the sponsors and our testimony today reflect not only our position as a prospective lead manager of the financing, but also as a prospective lender of very large amounts to the ANGTS project. Please keep in mind that we are being asked to consider lending $3 to the project for each $1 of equity provided by the owners. We are keenly aware of our responsibilities to our depositors, our stockholders and the public, including our responsibilities under law, to engage only in prudent lending practices. Therefore, as in the case of any loan made by Chase, our loans to the ANGTS project can only be made if the loans satisfy fundamental credit criteria. Our initial responses were contained in several letters and a memorandum (June 3, 1981 and July 13, 1981 regarding waivers; and August 28, 1981 regarding funding and the sponsoring group's financial plan), copies of which are being submitted with this testimony.

Chase is, as you know, one of a coordinating group of four banks, each of which has been given similar roles and charged to work as a group in examining all aspects of this unprecedented financing request. Since May 1981 the banks have had numerous meetings among themselves as well as with the sponsors and the gas producers. Based upon our work to date, The Chase Manhattan Bank is prepared to support the entire request for waivers. We share the views expressed by President Reagan in his message to the Congress that approval of this waiver package will enhance the likelihood of successful private financing. We also share with the President his conclusion that this project will contribute to the energy security of North America.

The Chase Manhattan Bank for many years has expressed publicly its concern about the inordinate dependence of the United States upon imported hydrocarbons to meet its energy needs. We feel as strongly today as we have in years past that this potential substitution of natural gas for imported oil, which may have the effect of reducing imports by approximately 350,000 barrels per day (the oil equivalent of 2 billion cubic feet of gas per day), will contribute very significantly to this country's national security.

We view the request for these waivers not only as necessary conditions precedent to the structuring of a workable financial plan but also as clear signals to the international community of lenders that this project is of great significance to the United States. As we attack the syndication of this $27 billion project among the lenders of the world we would hope that strong signals will continue to emanate from our government which will reflect no diminution of interest among the many beneficiaries of a secure delivery system for these quantities of gas from United States sources in Alaska.

In project financing, risks and rewards must be equitably shared among the various beneficiaries of the project. This sharing is accomplished through active participation by all beneficiaries in the negotiating process, including the participation of Congress through the waiver process we are engaged in today. Certain legal impediments have existed prior to the submission of this waiver package that have inhibited a free and constructive dialogue among some of the beneficiaries of the project. It is most important therefore that the way be cleared for the type of give and take negotiating process that addresses each of the financing elements of this total endeavor.

We must review in greater detail the capacity and willingness of the pipeline companies to contribute equity and to undertake contingent obligations; similarly we must review and assess the same attitudes on the part of the owners of the gas, the producers; we must reexamine the capacity of the global credit markets to ascertain in a more specific sense their capacities and appetites for the credit structure that will evolve from the negotiating process. We must also independently assess both the marketability of the gas to be delivered and the engineering and cost estimates of the Alaskan segments. And we must try to assess in our own minds as lenders the attitude of a future Congress with regard to the demands that possibly may be placed upon the consumer to begin paying for these Alaskan segments before the total delivery system is complete and gas is flowing.

In our opinion, and based upon the knowledge we have of many of the pipeline sponsors, we do not feel that these companies in the aggregate have sufficient credit strengths to support the debt necessary to finance the $27 billion Alaskan segments. That which cannot be supported by the pipelines must obviously obtain its support from other creditworthy sources. This will be the subject undoubtedly of future negotiations among all participants and will be fundamental to the credit structure of the financing plans. How equity will be shared among the parties and how contingent obligations will be allocated will be the basis for the ongoing work in the financing of this project.

The size and complexity of this financing are viewed with a good degree of awe by the lenders. Lenders have indicated in our preliminary conversations both here and abroad that they are not willing to accept the risks that the delivery system might not be completed nor are they willing to accept the risk of a future regulatory body changing the conditions under which the tariff and tracking mechanisms have been allowed to be implemented. These lenders have also indicated to us, and we concur in their attitudes, that they must be assured of the timely repayment of their debt and the interest thereupon. The word timely here is important because we will be obtaining funding from various groups of lenders with terms that might range from three to twelve years. A revenue stream must be defined and considered dependable for the lender to put his money at risk. Thus it must follow that when completion of the segment occurs, but not later than a date certain, the so-called early commencement of billing must be allowed at a minimum in order to ensure that a revenue stream is available for debt servicing.

We cannot say at this juncture, absent a more definitive financing plan, that approval of the waiver requests will ensure that the financing will be accomplished. We do believe, however, that if the Congress permits the proposed waivers to become effective, the private party participants in the project may be able to reach agreement upon the level and degree of equity and credit support which each can contribute. Such agreement, together with properly constructed tariff and tracking mechanisms, will provide the necessary underpinnings to permit us to continue our determined efforts to try to structure the financing of this project. Reggie Jackson, of the New York Yankees, put it aptly not too long ago when he said of himself modestly, that he was the straw that stirred the drink. This waiver request, if approved, will similarly be "the straw that stirs the drink."

Thus, with regard to the purpose of our appearing here today, i.e., to discuss the proposed waiver package, let me make the following comments:

With regard to producer participation, it is our understanding that the producers would not be willing to accept the risks associated with the construction of this project absent ownership roles. The waiver package addresses these ownership roles and we concur in the need for waiver in order to successfully enlist their financial support.

With regard to regulatory certainty, we have long been concerned with the very specific provisions of the Natural Gas Act that may not allow one regulatory body to bind the actions of a future regulatory body. This particular concern of ours was admirably described in the memorandum of August 18, 1981 by Charles A. Moore, General Counsel, Federal Energy Regulatory Commission to the Hon. Phillip R. Sharp and Hon. Clarence J. Brown, which addressed the question of the need for regulatory consistency. Our concerns are no less than those of the author of that particular piece. Our concerns apply to future Congresses as well, but it is our hope that given loud, clear and unmistakable signals with regard to the national need for the gas from Alaska, these concerns will be ameliorated. United States lenders may make a judgment in this regard, and this judgment will be significantly affected by the undertakings of all creditworthy parties. However, regardless of any such undertakings, if foreign lenders are given reason to be concerned about the constancy and commitment of Congress with regard to debt service, they may have second thoughts about lending to the project.

With regard to early commencement of billing, it is inconceivable that lenders will put their money at risk without some assurance of a revenue stream being available to repay their debts in a timely fashion. Again the word is timely and since various amounts will be loaned to this project having widely differing maturities, the date certain of commencement of the revenue stream is important. The waiver package calls for such a revenue stream after the completion of each of the Alaskan segments (the pipeline and the conditioning plant) without regard to the status of the other segment and we find that a most important and laudatory concept. Whether or not a lender will be willing to wait until the completion of each segment and a period thereafter for the beginning of the repayment of his debt is conjectural and for that reason we would hope that this Congress will accept the concept of the dynamic nature of this financing and be willing to hear and react to future needs should the global financial community find the early commencement of billing on these two segments, as presently defined, not sufficient.

With regard to evidentiary hearing requirements, I think that the history of regulation and the potential for further delay in the process of reaching a decision make it desirable for FERC to be granted discretion to hold hearings only when it deems such hearings appropriate. Time is important in the construction of this project and in the delivery of our own gas from Alaska. The more expeditious we can make the hearings before the regulatory commissions, the less will be the cost of the delivery system and the greater will be the benefits to the eventual consumer.

This will conclude my remarks before this committee. I would, of course, welcome any questions that you may wish to address to me. Thank you for your consideration.

SUBMISSIONS ACCOMPANYING

PREPARED STATEMENTS

OF

H. ANTON TUCHER

ON BEHALF OF

BANK OF AMERICA, N.T. & S.A.

STANLEY J. LEWAND

ON BEHALF OF

THE CHASE MANHATTAN BANK, N.A.

ROBERT H. GRAHAM

ON BEHALF OF

CITIBANK, N.A.

STEPHEN W. JENKS

ON BEHALF OF

MORGAN GUARANTY TRUST COMPANY OF NEW YORK

June 3, 1981

Mr. John G. McMillian
Chairman and Chief Executive Officer
Northwest Alaskan Pipeline Company
1120 20th Street, N.W.
Suite S-700
Washington, D.C. 20036

Dear John:

During the past two days, representatives of Bank of America National Trust & Savings Association, The Chase Manhattan Bank (National Association), Citibank, N.A. and Morgan Guaranty Trust Company of New York (the "Banks") met to discuss the Alaskan Northwest Natural Gas Transportation Company ("Alaskan Northwest") legislative waiver proposal forwarded to the Banks last week by Rush Moody, Jr. We understand that Alaskan Northwest intends to request that the President submit a legislative waiver proposal to Congress under Section 8(g) of the Alaska Natural Gas Transportation Act of 1976, which authorizes the President to request the waivers of certain provisions of law "in order to permit expeditious construction and initial operation" of the Alaska Natural Gas Transportation System ("ANGTS").

You have asked us for our preliminary views on legislative waivers by the middle of this week. Because of the limited amount of time available to us, we have not had an opportunity to review your proposal with regulatory counsel. Moreover, any consideration in depth of the general question of whether waivers additional to those identified and discussed generally herein may be necessary or advisable in order to finance the Alaskan portion of ANGTS privately must await further development of the detailed structure of a financing plan through negotiations among the project's sponsors and the lenders. Rather we have sought at this early stage to give you our views on the waivers presently identified to us which are of particular concern to lenders.

1. Commencement of Billing Under the Tariff. We agree that it is necessary for billing to commence under the tariff for the Alaskan segments of ANGTS prior to the "completion and commissioning" of the entire ANGTS. Moreover, we feel that the waiver request should leave open for now the

question of whether the Alaskan segment should be treated as one or divided into segments for purposes of commencement of billing, or whether there is some other basis on which to establish earlier billing commencement as to some or all charges. This revision could provide flexibility in developing an acceptable financing plan for the Alaskan portion of ANGTS. Different approaches which might be used in the financing plan include designating individual segments of the Alaskan portion on the basis of area covered, difficulty of construction or cost of construction.

2. Producer Participation. We endorse the equity participation in the project by producers of Alaskan gas. We believe that producer participation in the project will be a significant, constructive step in enhancing the project's financeability.

3. Regulatory Consistency. In the view of the Banks, a necessary component in any successful financing plan for ANGTS is the proposition that, once made, regulatory decisions on which the project's lenders have relied will not subsequently be rescinded or modified to their detriment. Accordingly, the Banks support the requested waiver of Sections 4, 5 and 16 of the Natural Gas Act (the "NGA") as those sections and applicable rules, regulations and orders may affect regulatory decisions made in connection with ANGTS or the shipper tracking mechanism referred to below in 4. The Banks also support the proposed waiver of Sections 1(b) and 2(6) of the NGA in order to confirm that Alaskan Northwest will be a "natural gas company" for all purposes under the NGA when "completion and commissioning" occurs for a segment of the pipeline, whether or not gas is actually flowing.

4. Shipper Tracking and Pricing. Since the debt financing for the construction of the various segments of ANGTS is expected to be amortized principally through transportation charges paid by shippers, it seems to us to be important that tracking provisions be in place at the outset of the financing which permit the shippers to recover these charges from their customers. In addition, to the extent that any statutory provision, rule, regulation or order could be construed to require incremental, rather than rolled-in, pricing in connection with gas delivered through a segment of ANGTS, such provision or regulation should be waived.

In the time frame and prior to the development of a detailed financing plan we cannot be more definitive in our comments. However, we hope that it is helpful to you to have our views at this time. As you know, key issues in the formulation of a financing plan still remain unresolved and may well require additional legislative waivers or other legislative or regulatory action. We look forward to working with you in resolving these issues.

Please let us know if you have any questions or comments on this letter.

Very truly yours,

BANK OF AMERICA NATIONAL TRUST
& SAVINGS ASSOCIATION

By______________________
Vice President

THE CHASE MANHATTAN BANK (NATIONAL
ASSOCIATION)

By______________________
Vice President

CITIBANK, N.A.

By Lance C. Griswold
Vice President

MORGAN GUARANTY TRUST COMPANY OF
NEW YORK

By______________________
Vice President

SUMMARY OF BANK VIEWS ON THE EARLY BILLING COMMENCEMENT ISSUE

In a June 3, 1981 letter to John G. McMillian of Northwest Alaskan Pipeline Company commenting on a draft legislative waiver proposal, the Banks stated their view that it is necessary for billing to commence under the tariff for the Alaskan segments of ANGTS prior to the "completion and commissioning" of the entire ANGTS. The position of the Banks regarding the manner in which early commencement of billing should be treated in the legislative waiver proposal remains the same as stated in the June 3 letter.

> "(T)he waiver request should leave open for now the question of whether the Alaskan segment should be treated as one or divided into segments for purposes of commencement of billing, or whether there is some other basis on which to establish earlier billing commencement as to some or all charges."

The June 3 letter went on to note that this suggested approach would provide flexibility in developing a plan for the private sector financing of the Alaskan portion of ANGTS. A copy of the June 3 letter is attached for convenient reference.

I. Reasons why some form of early commencement of billing for debt service is important to the financeability, on a private sector basis, of the Alaskan portion of ANGTS:

(a) Positive impact on the economic feasibility of the project by reducing overall capital costs and therefore improving gas marketability.

(b) Reduction of funding requirements. For example, the payment of interest during construction could reduce aggregate funding requirements by a significant amount.

(c) Mitigation of potential cost overruns which are often largely represented by the capitalized interest costs of delay.

(d) Potential additional assurance of debt repayment to bank lenders and other creditors.

(e) Consistent with Canadian early billing requirements upon completion of the Canadian portion of ANGTS.

II. Possible mechanisms for early billing commencement (which might be appropriate singly or in combination):

(a) Provide for prompt commencement of billing for interest.

(b) Provide for commencement of billing for debt service charges in stages as the project achieves predetermined financial goals (possibly with an additional grace period before debt repayment is required).

(c) Provide for early commencement of billing based upon the completion of geographically defined segments.

III. Reasons why it is premature to identify the precise form and terms of an appropriate mechanism:

(a) The Banks must complete their review of the project engineering, as well as the studies which they are presently undertaking regarding the worldwide capacity of capital markets, gas marketability and the economic feasibility of the project.

(b) Congressional treatment of other issues raised in the waiver request must be taken into account.

(c) A specific financing plan must be formulated and negotiated with the project companies and agreed upon by the parties.

Although the foregoing outline deals only with the issue of early billing commencement, the June 3 letter on legislative waivers also expressed the view of the Banks on the issues of producer equity participation, regulatory consistency and shipper tracking and pricing. Moreover, the Banks are not in a position at this time to state whether other issues may not also be appropriate for legislative or regulatory consideration from the standpoint of lenders. As was stated in the June 3 letter:

> "[A]ny consideration in depth of the general question of whether waivers additional to those identified and discussed generally herein may be necessary or advisable in order to finance the Alaskan portion of ANGTS privately must await further development of the detailed structure of a financing plan through negotiations among the project's sponsors and the lenders."

***

> "As you know, key issues in the formulation of a financing plan still remain unresolved and may well require additional legislative waivers or other legislative or regulatory action."

July 13, 1981

August 28, 1981

Mr. John G. McMillian
Chairman & Chief Executive Officer
Northwest Alaskan Pipeline Company
P. O. Box 1526
Salt Lake City, UT 84111

Dear Mr. McMillian:

In our letter of June 18, 1981, submitting our proposal to assist you in structuring financing for the Alaska Segment of the Alaska Natural Gas Transportation System (ANGTS) (the "Project"), we (the "Banks") indicated that, in the first phase of our work, we would complete a preliminary review of capital markets and funding sources for the Project and present to you our initial assessment, not only of the amounts, but also of the basic terms on which we believe funds from these sources might be available. We also undertook to develop an approach to reviewing the technical and marketing aspects of the Project and to determine how we could obtain satisfactory access to a financial model to assist us in analyzing the financing plan.

On August 6, 1981 we wrote to you to report on the first phase of our work. In subsequent conversations you asked for certain clarifications and amplifications of statements in that letter. In response, we are submitting this letter which replaces and supercedes our earlier letter.

We have conducted our investigations and analysis on the basis of information furnished by you, contained in the presentations you gave to each of the Banks in late May, the Project Overview you supplied to each of the Banks at that time, your letter to Exxon, Sohio, and Arco (the "Producers") dated May 21, 1981 outlining the terms of the pipeline sponsors' (the "Sponsors") agreement with the Producers, a number of financial cases prepared by the Sponsors, and information you provided in connection with certain legislative waivers in order to facilitate financing and construction of the Project.

Concurrently with this phase of our work we have been considering the legislative waivers. We wrote to you on this subject on June 3, 1981, and on July 14, 1981 we made available to you a memorandum which was distributed to a number of Administration officials and Congressional staff. We continue to support the views expressed in those communications, and would emphasize the need for a flexible approach to "billing commencement" until a more definite financing plan is developed.

The principal focus of our efforts to date has been to address the funding availability and related credit aspects of the Project, and this letter deals almost entirely with these subjects. However, a few brief comments are also included on the work of our task forces which have been addressing the issues of Gas Marketability, Engineering, and Financial Modeling. These groups have been developing approaches to their respective aspects of the Project to be pursued in detail in subsequent phases of our work. While the scope of their work is more appropriately covered in a later proposal dealing with parameters and premises that should govern the next phase of our work, several of their conclusions are relevant to this report and form Appendix A.

Inter-Relationship of ANGTS Segments

We were asked to focus our analysis of the Project on the Sponsors' share of the financing for the Alaska Segment. However, upon reflection, it became apparent to us that it would be necessary to broaden our consideration to take into account the impact on the capital markets of the aggregate financing requirements of both the Sponsors and Producers in Alaska as well as the financing requirements for the overall ANGTS project, including Canada and the "lower 48".

a) We understand that it is the intent of both the Sponsors and Producers that, after completion, all financing for the Alaska Segment is to rely on a common source of repayment, i.e. the tariff arrangements. Therefore, we could not ignore the Producers' share of the Financing for the Alaska Segment and did not attempt to consider separate and discrete financings for the Sponsors and Producers.

b) Since, to the best of our knowledge, the post-completion sources of repayment for the Alaska Segment, the financing of the expansion of the "lower 48" facilities and the refinancing of the prebuilt segments will rely on common payment arrangements through the tariffs, we expect that lenders would consider those financings one credit for risk and funding allocation purposes.

c) While the Canadian segment will have available to it additional Canadian loan sources, there is a substantial overlap both in the available funding sources and in the risks, given that all segments rely on related tariffs.

Funding Availability Study

Appendix B contains our initial assessment of funds availability, together with preliminary indications of the basic terms on which funds might be made available for the Project. Although our estimates are based on conversations with a relatively small number of potential lenders, the results conform with our own views and we believe are an accurate reflection of availability of funds in world capital markets under current market conditions.

For reasons described below, the review was undertaken on the basis that the loans would be the risk equivalent of debt with an A/Baa credit rating. Given the equivalent of an A/Baa credit, the maximum amount of Project credit available for the Alaska segment is estimated to be between $12 billion and $18 billion. For reasons described above, this amount will be affected by the funding strategy for the Canadian segment and for the expansion of the "lower 48" facilities. This total amount includes loans from domestic and foreign banks, foreign export credit agencies, and institutional lenders, all of whom are assumed to commit in early 1982. This assumes the satisfactory negotiation of acceptable terms with foreign export credit agencies, i.e. their willingness to accept the same credit support as the banks and longer than usual maturities, and the current reluctance of insurance companies to make forward commitments. We expect, however, that insurance companies might be willing to lend additional amounts beyond those contemplated in the funding study as the Project progresses.

We anticipate that the typical final maturity for the financing would be ten years with a grace period of five years and an average life of 7.5 years. There would, of course, be tranches with final maturities of 5-7 years from the smaller U.S. and European banks and of 12-15 years from certain larger banks and institutional lenders. The bulk of the bank financing would, however, have a ten year final maturity and a 7-8 year average life.

Without a dramatic improvement in credit quality, neither the availability of funds nor the average life of the financing would increase significantly. A reduction in credit quality below the equivalent of an A/Baa would, however, have a material adverse impact on both the amount and average life of the financing.

Basic Financing Conditions

The Banks have given considerable thought to the question of the basic financing conditions for the Project based on the assumptions you have provided:

1. Capital costs on an "as spent" basis of $21 billion for the pipeline and $6 billion for the conditioning plant, with a completion assurance pool of an additional $3 billion.

2. A debt equity ratio of 75%/25%, and an equity split of 70%/30% between Sponsors and Producers.

3. Your request that the Banks consider a completion pool of funds concept, i.e., irrevocable commitments from lenders and no formal undertakings from creditworthy parties to assure debt repayment in the event of non-completion by a date certain and/or pre-completion abandonment.

While we used these basic premises in our Phase I review and have drawn certain conclusions regarding their acceptability we suggest that any premises to be used in Phase II will need to be thoroughly tested as the Project's financial structure is developed.

Given the results of our funding study, and our review and consideration of the Project information forwarded to us, we have come to the following conclusions:

1. Our funding study clearly indicates that the overwhelming bulk of the financing will be available only if lenders perceive the credit structure to be the risk equivalent of debt of A/Baa quality.

   We believe that for the Project to be considered of this credit quality and, therefore, for commitments in the necessary amounts to be arranged prior to commencement of construction, the following basic criteria would have to be met:

   a) The ANGTS project must be economically and technically feasible.

   b) The debt must be supported by repayment assurances involving

      (i) during the pre-completion phase, a combination of

         -acceptable debt assumption arrangements by Sponsors, Producers and possibly other beneficiaries, and

         -acceptable commencement of billing provisions prior to the completion of the overall System;

      (ii) acceptable post-completion, cost of service transportation tariffs providing for debt service in all events;

      (iii) acceptable tracking provisions; and

      (iv) all tariff arrangements relating to debt service to have assurance of regulatory certainty mandated by law.

c) Sufficient funding must be considered by lenders to be available to meet potential overrun requirements.

d) The cash flow from the Project for debt repayment must be sufficient so that a substantial refinancing risk would not be present, particularly if the economics of the Project are potentially marginal in early years (see later discussion on refinancing risk).

It is our judgment that loans based on the completion pool of funds concept as presented will not be perceived by lenders generally to be of A/Baa quality. Consequently the bulk of the funds needed for the construction of the Project cannot be raised on that basis. Only a relatively small number of banks are capable of assessing and prepared to assume engineering-based risks as required under a completion pool of funds concept. We cannot ascertain the exact amount, if any, which might be raised for this Project on a completion pool of funds basis without having further developed the credit structure for all the financing. However, we strongly believe that: (i) the small number of banks prepared to provide financing on this basis would commit only a small part of their lending limits to such a credit and in the aggregate that amount would be a relatively small part of the total debt required, and (ii) such banks would require substantial inducements and difficult-to-achieve conditions precedent to any drawings under their commitments.

2. Although we have focused our analysis principally on the problem of funding availability and on basic conditions of the initial debt financing, several points relating to post-completion financing problems should be noted:

a) There could be substantial refinancing requirements in the early years of operation and perhaps in the later years of construction.

b) Once completed, the Project, assuming a properly functioning FERC-approved tariff, regulatory certainty, and demonstrated gas marketability, may command an investment grade rating for private placements and public issues.

c) On these assumptions, and with the understanding that not all refinancing requirements will have to be satisfied at one moment after completion, we believe that it should be possible to raise the amounts needed to refinance maturing loans.

3. We have not had an opportunity to review the bases on which the capital cost estimates are calculated, and therefore, are not in a position to comment on their appropriateness under modified debt financing concepts. Thus, we do not know the exact level of required funding for the Project and the overall ANGTS. To the extent that the debt requirements at the outset exceed the amount considered available for one credit, funds will have to be raised as entirely separate and discrete credits, under the full financial responsibility of creditworthy parties. Such commitments would be additional to any credit responsibility assumed by such parties in connection with debt repayment assurances for financings in the pre-completion phase of the Project.

Based on our conclusions and rather than pursuing the "completion pool of funds" concept as the primary method of raising debt financing (and it is our judgment that it cannot be relied upon) we suggest consideration of the following:

a) primary reliance on conventional project completion/debt assumption arrangements providing for an assured source of repayment by the equity owners in the event of non-completion and/or abandonment;

b) to the extent available, debt, which while not supported by debt assumption arrangements from equity owners in the event of non-completion, would be subject to conditions precedent to usage; these conditions would provide assurance that completion will occur and that the Project remains economically feasible;

c) debt support and/or debt from other beneficiaries of the Project; and

d) to the extent required, commencement of billing prior to completion of the overall system.

Given the capital cost estimates we have reviewed and based on the relevant financing parameters you have provided us, it is our considered opinion that all the debt support mechanisms outlined above in a), b), c), and d) will have to be aggressively pursued. We would strongly suggest that at this time the Sponsors place primary emphasis on the project completion/debt assumption arrangements.

In view of the Banks' conclusion that "the bulk of the funds needed for the construction of the project cannot be raised on a completion pool of funds basis" it may be desireable for the Sponsors to review the contingency provision in the capital cost estimates premised on the "completion assurance pool of funds" concept. This would yield a reduction of at least $3 billion in the $30 billion financing requirements as presented to us. Further reductions are, of course, dependent on the level of contingencies thought to be necessary including the rates of inflation and interest that are selected. We would encourage your review of the capital cost estimate to develop a base case for lender review of the total funding requirements under modified project financing concepts.

In summary, if the required credit support can be arranged, the Banks are of the opinion that a modified plan may well provide the basis for private sector finaincing of the Project. The nature of the modifications required are essentially, although not completely, covered in the suggestions we have recommended for your consideration. The way in which these suggestions are implemented will, of course, be instrumental, along with other conditions we have noted in this letter, in actually achieving the funding commitments that will be required.

We recognize that there are practical limits to the resources the Sponsors and Producers can and will commit to the Project, as well as limits to the extent of pre-completion consumer participation. We have not attempted to determine these limits, believing as we do, that these limits are best determined by negotiations within the partnership and by the regulatory and political process. The early determination of the relative interests of each equity participant will be a necessary precondition to the timely development of a financing plan.

While we have tried to provide you in this letter with our considered opinions on certain fundamental aspects important to the development of the financing, we feel that a forum for discussion of our views would be extremely helpful. We appreciate that the magnitude and complexity of the Project will necessitate a great deal of thought and discussion by all parties to arrive at a mutually agreeable financing plan. We would like to assure you of our enthusiastic support for and readiness to participate in such a discussion.

Sincerely,

BANK OF AMERICA NATIONAL TRUST
& SAVINGS ASSOCIATION

By
Vice President

THE CHASE MANHATTAN BANK
(NATIONAL ASSOCIATION)

By
Vice President

CITIBANK, N.A.

By
Vice President

MORGAN GUARANTY TRUST COMPANY
OF NEW YORK

By
Vice President

APPENDIX A

Gas Marketability Study

The question of marketability goes to the heart of the economic viability of the Project, affecting not only the ability of the shippers to collect their transportation charges through the tariff but also the incentive to various parties to commit funds and to assure completion. As such, we believe that it is important for the marketability of Alaskan gas under various market and regulatory scenarious to be reviewed with great care on our behalf by reputable independent consultants and that this study be completed at the earliest possible date. The gas marketability committee has defined the scope of required work and has identified acceptable consultants.

Engineering Review

As we see it the required reviews of engineering information by independent consultants on our behalf should fall within two distinct areas: (1) The availability and deliverability of gas reserves and (2) validation of the engineering work done in connection with planning the construction of the conditioning plant and pipeline, with particular emphasis on costs and the risks of non-completion.

The gas reserves portion of this work is not expected to pose any particular problem. While financing commitments would be subject to validation of the adequacy of reserves by independent consultants acceptable to the Banks, this study can, in our judgment, be postponed until shortly before loan syndication. In the interim, we are prepared to proceed on the basis of a review by bank engineers and assume that the study by independent consultants will confirm that there are adequate reserves to meet contracted deliveries.

Much more difficult and important at this time is the work of validating the engineering work done in connection with the construction of the conditioning plant and pipeline. The scope of the required work will, at a minimum, include a "due diligence" overall review of all major technical aspects of the Project. This study would include an assessment of technical feasibility, the basis and adequacy of cost estimates and schedules, and identification of critical risk areas that might require further analysis. The study of the plant and pipeline should be commenced as soon as possible.

Financial Modeling

Our Financial Modeling Committee has been working with your people to understand the model you have been using. They have concluded that the most effective approach would be to develop ways of utilizing your model as the principle source of computer simulation. We have begun that process. We would expect to augment this work with relatively modest amounts of computer analysis using the individual Banks' existing resources.

APPENDIX B

ANGTS PROJECT
FUNDING SUMMARY

The Funding Committee has been requested to assess the availablity of funds from all significant sources for the Alaskan portion of the Alaska Natural Gas Transportation System (ANGTS). Given the size of the capital requirements and the complexity of the project the study has been divided into the geographic areas of the United States, Canada, Middle East, Europe, Asia, and Latin America. Assessing the overall appetite of the worldwide capital markets involved an in-depth study of the legal and policy limits of the banking community in each geographic area, the potential interest of non-bank institutional lenders, and the historical lending policies of the suppliers and export credit agencies in each country based on the potential equipment sources submitted by the company.

In order to insure consistency in the findings of each of the studies and to maximize the amount of credit which could be raised from each market it was necessary to establish certain common assumptions. In assessing the available credit within each country several major financial institutions were contacted. They were informed that their names would not be revealed in order to avoid a feeling of moral commitment and thus an overly conservative response. The fundamental assumptions utilized in conducting the survey were as follows:

(1) The borrower would be the risk equivalent of debt with a medium grade investment rating (A/Baa). If the project is not equivalent to this credit, the amount of funds available to the project will drop significantly.

(2) The pricing would be fully commensurate with the risk involved.

(3) It will be important to have a high level of participation by U.S. commercial banks in order to insure high commitment levels from other geographic sectors. This is especially crucial because of the lack of relationship benefits which will be derived from participating in this financing.

(4) Careful consideration should be given to maximizing the amount of goods sourced abroad as there does exist a correlation between the exports from a country and the amount of credit indigenous banks are willing to extend. Therefore, maximizing foreign sourced goods may increase the total financing available for the project.

(5) The degree of Canadian participation in Alaska is directly related to the level of U.S. and other non-Canadian participation in the Canadian segment and the coordination of these two financings will be of fundamental importance.

(6) To the extent that prime bank guarantees are required for export facilities, this would reduce the amounts available from commercial banks.

Additionally, the assumptions of an environmental nature which underlie the numbers presented and which are necessary to insure the maximization of funds from each market are as follows:

(1) The project needs to be perceived as possessing national interest status preferably through formal U.S. governmental pronouncements.

(2) Even if this project is regarded as being of national interest by the U.S. government, there is a strong need to have an exceptionally well coordinated publicity effort in terms of the timing of the release of information, what data is made public, and in what manner.

(3) Within each country it is important to coordinate and segregate the individual financings with each category of financial institution in order to provide high visibility and thus motivation for strong participation. The coordination must not only extend to each individual financing for the Alaskan segment of ANGTS, but to the financing plans for the other segments of the pipeline system.

(4) Each financial institution must be approached correctly and at the appropriate level.

(5) It is important to give the financial institutions adequate time to analyze the material submitted in order to conduct their own assessments of the viability of the project. In this regard, presentations should be organized for the various countries.

(6) Specific presentations should be organized for the U.S. institutional market by the commercial bank advisory group due to their involvement in the project through an advisory role and as direct lenders. This would supply further credibility and maximize the funds available from this source.

Although the survey had been initially structured to segment the market in terms of the amounts available for 5 year commitments, 5-10 year commitments and 10-15 year commitments, the final conclusion reached was that 10 years (and in a few instances 12 years) would be the maximum overall term available except for the U.S. institutional market, but that within each individual financing one may need to offer a variety of commitment tenors and average lives in order to obtain the largest amounts. Therefore the amounts listed for each geographic area take this into consideration. Two columns have been included for conservative and relatively aggressive estimates. These numbers are based on the optimal blend between local currency and U.S. dollars for each geographic area although the local currency content would relate principally to export facilities. The incremental sums from institutional lenders which could be raised in later construction phases have not been assessed in detail. To the extent that the sponsors are successful in maintaining the construction program on a timely basis within cost parameters it is certainly probable that additional funds from these sources would be available. Also to the extent that an investment grade rating were obtained, the incremental sums which could be obtained from the public markets in the U.S. and abroad could be substantial. The preliminary estimates for the amounts which could be raised under the above assumptions are as follows:

FUNDING ESTIMATE SUMMARY
IN THOUSANDS OF U.S. DOLLARS

U.S.		
Commercial banks	$3,000,000	$3,500,000
Institutional lenders	1,500,000	2,500,000
Canada		
Commercial banks	2,500,000	3,000,000
Europe		
Commercial banks	3,500,000	4,000,000
Middle East		
Commercial banks	500,000	500,000
Asia		
Commercial banks	1,800,000	2,400,000
Latin America		
Commercial banks	150,000	250,000
	$12,950,000	$16,150,000
Export Credit Facilities	1,700,000	1,700,000
	$14,650,000*	$17,850,000

* Could be reduced by $2.5 billion if Canadian participation does not materialize - See Assumption #5.

FUNDING ESTIMATES

ANGTS - Project

UNITED STATES

Introduction

The United States commercial banking market comprises a broad spectrum of banks ranging from multinational institutions with deposits in the range of $80 billion to small community banks with total deposits of around $500 million. Approximately 300 banks constitute the above range. By comparison with the banking systems of other OECD countries from which funding for the ANGTS project is contemplated, the U.S. system represents a far wider distribution of the total national deposits amongst a greater number of institutions. Since only large financial institutions maintain the ability to analyze complex credits of the type contemplated, the fragmentation of the U.S. banking system represents a severe hindrance on the total amount of the funds available from this market.

While the U.S. banking system has experienced over the past few years a situation of low loan demand, recent evidence suggests that this trend is now reversing. The current spate of multi-billion dollar financings can be added to a firmer underlying trend of increases in corporate loan outstandings prompted in part by a high level of pent-up demand in the capital market sector. In addition, the capital spending programs of many major corporations are anticipated to be in excess of their ability to generate funds, thus leading to their increasing from present levels their utilization of long-term debt from the commercial banking system. The outcome of this banking environment is likely to place the ANGTS project in the position of competing for increasingly scarce long-term funds.

The aggregate capital of the largest 300 U.S. commercial banks, ranging in deposit bases from $89 billion to $487 million, totalled $61.5 billion at year-end 1980. (See Table I) The theoretical maximum lending abilty of these institutions is a function of this total capital. However, many institutions do not include supplemental capital, i.e., subordinated debt and preferred stock in computing their own lending limits. Available information suggests that such supplemental capital represents a figure of approximately $4.7 billion. Thus the total capital of the top 300 U.S. commercial banks, as adjusted, adds up to $56.8 billion which suggests an aggregate legal lending limit of $5.7 billion. However, it is considered unlikely that banks ranking lower than no. 150 will participate as lenders to the project. Similarly, it is likely that the smaller the bank the lower will be the percentage of its legal lending limit committed to the project and the higher will be the likelihood of that bank declining to participate. Realistically, therefore, the project is looking to no more than the top 100 banks whose adjusted aggregate capital stands at $43.7 billion leading to a theoretical maximum lending limit of $4.4 billion.

Assumptions

1. Medium grade Baa equivalent project credit.
2. Pricing fully reflective of project risk.
3. Project clearly perceived by the market as being considered in the national interest by the U.S. Government.
4. Marketing of credit to be conducted at senior management level.

Estimated Potential Capacity

$3,500,000: Represents 80% of the Adjusted Legal Lending Limit Capacity of the top 100 institutions. The maximum tenor of the loans would be 10-12 years. A substantial portion would be limited to a maximum tenor of 7 to 8 years.

Table I

COMPARISON OF LARGEST U.S. BANKS' CAPITAL TOTALS
(000,000s omitted)

	12/31/80	12/31/79
U.S. Commercial Banks Capital (1)		
100 Largest	$12,512	$11,685
Second 100 Largest	2,363	2,352
Third 100 Largest	1,297	1,324
Total - Top 300	16,173	15,361
Surplus and Undivided Profits (2)		
100 Largest	$35,033	$31,837
Second 100 Largest	6,569	6,057
Third 100 Largest	3,745	3,262
Total - Top 300	45,348	41,155
Total Capital (3)		
100 Largest	$47,546	$43,522
Second 100 Largest	8,932	8,408
Third 100 Largest	5,043	4,586
Total - Top 300	61,520	56,516

(1) Includes common stock capital, preferred stock and subordinated debt.
(2) Includes subordinated debt assumed by parent.
(3) The sum of capital, surplus and undivided profits as defined in footnotes 1 and 2 above.

FUNDING ESTIMATES

ANGTS - Project

United States Institutional Market

Introduction

The corporate finance departments of Bank of America, Citibank, Chase Manhattan Bank and Morgan Guaranty Trust Company have been asked to comment on the availability of funds in the United States institutional market, for the Alaskan portion of the Alaska Natural Gas Transportation System (the Project).

In addressing this market we have considered the overall state of the market, large private placements previously placed in this market, particularly those of a project nature and the views of the sixteen largest insurance companies on the availability of funds for this project. Our conclusions have been built upon this background and have assumed a favorable economic and market environment.

Any assessment of this type is subject to many important assumptions. One of the most crucial assumptions in this regard is the credit structure of the issuing and/or guaranteeing entity. We have assumed that the Project attains the equivalent of a medium grade (Baa) investment rating. This would generally restrict the Project to the traditional private placement market where the investment risks can be more fully analyzed. This market primarily consists of insurance companies and some pension funds who have staffs trained in the analysis of this type of credit.

A number of factors will determine the amount of money that the Project will be able to borrow from this market. The first and most obvious factor is the size of the market itself. Table I presents the total dollar amount and number of issues done in the private placement market for the last ten years and for the interim period ending June 24, 1981. This table shows that the size of the market has been decreasing from a peak of $25.7 Billion in 1977 to a low of $16.3 Billion in 1980. Further, the interim results for 1981 show that this trend is continuing this year. This decrease has resulted from a number of factors, the most important of which are the reduced demand for whole life insurance, which reduces the premiums flowing into the life insurance companies, the increase in policy loans resulting from the present high interest rate environment and the growing caution of the market toward long term fixed rate obligations. Generally speaking, although many borrowers have avoided issuing long term fixed rate debt at these high interest rate levels, lack of demand from issuers has not been a significant factor causing the reduced activity in this market.

These factors have been offset to some extent by the increase in pension fund money management being done by the insurance companies and the reduced growth of policy loans over the past twelve months. While it is difficult to make predictions in such a volatile economic environment, we would be hopeful that the total market size would return to $20 Billion in the near future and maintain at least that level thereafter.

We should now consider the relative amount of the total market that has been taken by any individual issuer in a given year. Table II lists the ten largest issues done in the private placement market and the percent of that year's total market represented by that transaction for the years 1971 thru 1980. The following table lists the transactions that accounted for over three percent of the total market in the year of issuance.

ISSUES ACCOUNTING FOR OVER 3% OF TOTAL MARKET

Issue	Year	Issue Size ($000)	% of Total Market
Sohio/BP Trans Alaska Pipeline	1975	$1,750,000	12.95%
American Telephone & Telegraph Co.	1972	1,000,000	8.46
Hydro-Quebec	1976	1,000,000	4.71
Ontario Hydro	1976	650,000	3.06

Although very few issues accounted for over three percent of the total market, there is precedent for issues taking up to 13% of the market, as was done by the Sohio/BP Trans Alaska Pipeline in 1975. In addition, the Sohio/BP Trans Alaska Pipeline returned to the market in 1976 to borrow $500,000,000, equivalent to 2.35% of that year's market. On the basis of this data, we believe that a practical limit would be 10% of the market in any given year. Therefore, if the private placement market returned to a $20 Billion level, this would translate into a yearly limit of $2 Billion. If commitments could be obtained for eighteen months at this rate, $3 Billion could be obtained. We believe that this is a very high target.

We next look to precedent in determining the amount of financing that can be obtained from the private placement market. Table III presents a list of recent borrowers with major projects in construction and the total amount of financing that they were able to obtain over the last ten years. The Sohio/BP Trans Alaska Pipeline was clearly the largest issuer at $2.25 Billion in two issues done in 1975 and 1976. Although this is a record amount, we also note that the dollar amounts are in deflated dollars (the GNP deflator was 1.1959 as of January 1, 1975 and is 1.8814 as of March 31, 1981). The completion of the Sohio/BP Trans Alaska Pipeline also sets a good precedent for the Project. If we inflated the amount raised by the Sohio/BP Trans Alaska Pipeline by applying the GNP deflator, the equivalent amount in 1981 dollars would be $3.54 Billion. However, we also note the decline in this market in absolute dollars since that time and believe that this amount is a very high target.

In order to increase the amount of financing available from institutional sources for the Project, methods of entering other markets, of spreading the credit risk to other credit worthy entities and of devising financial structures of greater interest to the institutions than long term fixed rate debt should be considered. We will address each of these areas by presenting ideas which may or may not prove to be feasible in the light of further research.

One market which we have not considered entering at this time is the tax-free market. Entry into this market would require a governmental issuer and an investment grade rating. If these can be obtained, the size of the market has been demonstrated by the Washington Public Power Supply System issues listed in Table IV.

Insurance companies may be willing to guarantee additional debt while not affecting their appetite for direct loans to the Project and this concept should be further explored with them. Some of the insurance companies are presently investigating this area and this may enable them to increase their exposure without requiring actual funding for a transaction.

In recent years the insurance companies have become increasingly cautious of lending on a long term, fixed rate basis due to the effects of inflation. They have been experimenting with shorter maturities, variable rates, equity or income participation schemes and alternative investments such as outright ownership of real estate projects. We believe that maturities for a certain portion of the financing of less than 15 years would expand the market. Additionally, variable rates and income participation schemes should be considered. The determination of the actual package to be offered must be made at a time close to market entry since institutional preferences can change quickly in the present volatile economic environment.

In addressing the funding question, we have had direct conversations with the sixteen largest insurance company lenders. Although their responses reflect the present poor state of the fixed income markets, they generally received the idea of investing in the Project favorably. Their specific responses on the subject of their individual appetite for this project were a major input to the conclusions presented herein. We have considered these responses in the light of their participation in other large projects as detailed in Table V and discussed any major variances with them.

Assumptions

In arriving at our conclusion, we have made a number of assumptions. We have assumed that this credit is constructed in a way that will satisfy the standards of the traditional non-rated private placement buyers. Thus, the limit on the amount of participation for any institution is based upon portfolio diversification concerns rather than on concerns related to specific project risks. We have also assumed that the issues are attractively priced, that the project will receive top level involvement and review at the institutions as a result of the method of offering used by the agent banks and the high degree of national support for the project and that the publicity surrounding the project is carefully controlled and monitored. Our assessment of the market also assumes a relatively stable economic environment.

Estimated Potential Capacity

Based upon our study and survey of the market, we believe that the project might be able to raise between $1.5 and $2.5 Billion in pre-construction commitments. Additionally, we believe that the project could take up to $1 Billion from this market during the later years of construction. In today's market, we believe that half of these funds could be raised with a longer maturity of 15 years with a 10.5 year average life and half with shorter maturities of 10 years with an 8 year average life.

Recommendation

We believe that the private placement groups of the lead banks are best positioned to approach this market for the Project. Not only are the banks fully knowledgeable of the Project, and thus able to effectively communicate its investment characteristics to prospective institutional purchasers, but their role as major providers of funds gives additional comfort and sponsorship to the issues.

TABLE I

Total Private Placement Market

Year	$ Amount	# of Issues
1981 (thru 6/24)	$ 5,616,269,719	301
1980 (thru 6/24)	7,319,458,971	382
1980	16,293,062,389	1,052
1979	22,544,632,949	1,342
1978	23,455,861,430	1,416
1977	25,748,601,184	1,460
1976	21,240,397,419	1,049
1975	13,514,759,461	938
1974	10,673,728,890	997
1973	12,183,370,946	1,290
1972	11,825,313,190	1,432
1971	9,066,981,208	1,457

TABLE II

Largest Private Issues 1971 thru 1980

Year 1980

Company	Amount ($000)	% of Total Market
McGraw Edison Company	$200,000	1.23%
Arizona Public Service Co.	185,000	1.14
Int'l Minerals & Chem. Corp.	185,000	1.14
BankAmerica Corp.	165,500	1.02
Mesa Petroleum Company	150,000	.92
Wheeling Pittsburgh Steel	150,000	.92
Pan American World Airways	148,788	.91
Bear Creek Capital Corp.	135,000	.83
Congoleum Corporation	125,000	.77
SWF Gulf Coast, Inc.	125,000	.77

TABLE II Cont'd

Year 1979

Company	Amount ($000)	% of Total Market
Commonwealth Edison Co.	$300,000	1.33%
International Paper Co.	300,000	1.33
Norton Simon Inc.	250,000	1.11
Tenneco Inc.	225,000	1.00
Allied Chemical Corp.	200,000	.89
Texas Utilities Generating Co.	200,000	.89
Transco Exploration	200,000	.89
Pacific Gas & Electric Co.	175,000	.78
Convent Chemical Corp.	160,000	.71
Commonwealth Edison Co.	150,000	.67
Detroit Edison Co.	150,000	.67
Transcontinental Gas Pipeline Co.	150,000	.67
Pacific Gas & Electric Co.	150,000	.67

TABLE II Cont'd

Year 1978

Company	Amount ($000)	% of Total Market
Corpus Christi Capital Corp.	$525,000	2.24%
Commonwealth Edison Co.	300,000	1.28
Indiana & Michigan Electric Co.	300,000	1.28
Itel Corp. (Rail Div.)	300,000	1.28
Reserve Mining Co.	281,750	1.20
Wyodak Project	254,800	1.09
Continental Oil Co.	250,000	1.07
Montreal Urban Community	250,000	1.07
Chrysler Corp.	231,500	.99
Pacific Telephone & Telegraph Co.	200,000	.85
Tenneco Inc.	200,000	.85
Texas Utilities Generating Co.	200,000	.85
Western Electric Co.	200,000	.85

TABLE II Cont'd

Year 1977

Company	Amount ($000)	% of Total Market
Peabody Holding Co.	$500,000	1.94%
Middle South Energy Inc.	400,000	1.55
Alberta Gas Ethylene Ltd.	373,800	1.45
Massey-Ferguson Inc.	300,000*	1.16
Colonial Pipeline Co.	250,000	.97
Hydro-Quebec	225,000	.87
Ohio Electric Co.	200,000	.78
Pacific Telephone & Telegraph Co.	200,000	.78
Squibb Corp.	175,000	.68
Aluminum Co. of America	150,000	.58
Champion International Corp.	150,000	.58
Cities Service Co.	150,000	.58
Dome Petroleum Ltd.	150,000	.58
International Harvester Co.	150,000	.58
Mapco Inc.	150,000	.58

TABLE II Cont'd

Year 1976

Company	Amount ($000)	% of Total Market
Hydro-Quebec	$1,000,000	4.71%
Ontario Hydro	650,000	3.06
British Columbia Hydro & Power	500,000	2.35
Sohio/BP Trans Alaska Pipeline	500,000	2.35
Transco Gas Supply Co.	350,000	1.65
Sidbec-Normines, Inc.	330,303	1.56
Empire Iron Mining Partnerships	302,500	1.42
Commonwealth Edison Co.	300,000	1.41
Citicorp.	250,000	1.18
Alabama River Pulp Co. Inc.	227,500	1.07

* Consists of 2 separate issues of $150 million 9% senior notes due 1997 and $150 million 9 3/4% conv. sub. notes due 1992.

TABLE II Cont'd

Year 1975

Company	Amount ($000)	% of Total Market
Sohio/BP Trans Alaska Pipeline	$1,750,000	12.95%
Alasca, Inc.	200,000	1.48
National Steel Pellet Co.	200,000	1.48
Channelview Leasing Co. Inc.	183,750	1.34
Virginia Electric & Power Co.	150,000	1.11
Ford Motor Credit Co.	125,000	.92
Steel Co. of Canada	125,000	.92
Alcoa Company	100,000	.74
Canadian National Railway Co.	88,000	.65
M.I.M. Holdings Ltd.	85,000	.63

TABLE II Cont'd

Year 1974

Company	Amount ($000)	% of Total Market
State of Israel	$300,000	2.81%
Eveleth Expansion Financing	195,000	1.83
Buckeye Power, Inc.	170,000	1.59
Bell Tele. Co. of Canada	130,000	1.22
Square Butte Electric Corp.	126,500	1.19
W.R. Grace & Company	101,750	.95
Consolidated Aluminum Corp.	100,000	.94
Cameron Iron Works Inc.	100,000	.94
RCA Corporation	100,000	.94
Tenneco Offshore II Co.	100,000	.94

TABLE II Cont'd

Year 1971

Company	Amount ($000)	% of Total Market
General Motors Acceptance Corp.	$150,000*	1.65%
Olin Corporation	150,000	1.65
El Paso Natural Gas	115,000	1.27
Explorer Pipeline Co.	100,000	1.10
International Minerals & Chemicals	100,000	1.10
Kaiser Aluminum & Chemicals	100,000	1.10
White Consolidated Industries	100,000	1.10
Chromalloy American Corp.	85,000	.94
Gulf Oil Corporation	80,000	.88
Kaiser Foundation Hospital	80,000	.88
Colonial Pipeline Co.	75,000	.83
ICI American Holdings	75,000	.83

* Consists of 2 separate issues of $75 million 8 3/8% sub. notes due 1991 and $75 million 8 7/8% junior sub. notes due 1991.

TABLE III

Large Issues Raised in the Private Placement Market for Issuers with Large Construction Projects

Issuer	Amount ($000)	# of Issues
Sohio/BP Trans Alaska Pipeline	$2,250,000	2
Hydro-Quebec	1,225,000	2
Ontario Hydro	650,000	1
British Columbia Hydro & Power	500,000	1
Trans Canada Pipeline	400,000	1
Alberta Gas Ethylene, Ltd.	373,800	1
Wyodak Project	254,800	1

TABLE II Cont'd

Year 1973

Company	Amount ($000)	% of Total Market
Great Lakes Gas Transmission Co.	$200,000	1.64%
Exxon Pipeline Co.	175,000	1.44
Tenneco, Inc.	150,000	1.23
Western Electric Co.	125,000	1.03
Hooker Chemical Corp.	105,000	.86
Evans Products Co.	100,000	.82
Natural Gas Pipeline Co. of America	100,000	.82
Charleston Bottoms Rural Elec. Corp.	75,000	.62
Continental Oil Co.	75,000	.62
Gen'l Telephone & Electronics Corp.	75,000	.62
Southern California Edison Co.	75,000	.62

TABLE II Cont'd

Year 1972

Company	Amount ($000)	% of Total Market
American Telephone & Telegraph Co.	$1,000,000*	8.46%
Gen'l Motors Acceptance Corp.	265,000**	2.24
Mobil Oil Corp.	200,000	1.69
Iron Oil Co. of Canada	150,000	1.27
Quebec (Province of)	150,000	1.27
Associates Corp. of North America	140,000	1.18
Gen'l Telephone & Electronics Corp.	110,000	.93
El Paso Natural Gas Co.	95,000	.80

* Consists of 2 separate issues of $375 million 7 3/4% notes due 1997 and 625,000 shares of $77.50 preferred stock (par value $1,000).

** Consists of 2 separate issues of $132.5 million 7 7/8% sub. notes due 1992 and $132.5 million 8 3/8% junior sub. notes due 1992.

TABLE IV

Total Amount Raised by the Washington Public Power Supply System through the Tax Exempt Market.

	$ Millions	# of Issues
1973	150	1
1974	205	2
1975	550	4
1976	780	5
1977	595	4
1978	1,210	7
1979	980	6
1980	1,100	7
1981 (first 6 mos)	625	4
TOTAL	$6,195	40

TABLE V

Buyers of Large Project Issues

SOHIO/BP TRANS ALASKA PIPELINE:	Amount* ($000)
Aetna Life	$180,000
Aid Association for Lutherans	5,000
Alexander Hamilton Life	1,645
American Life & Casualty	100
Bankers Life of Nebraska	2,500
Capital Holding Corp.	2,500
Connecticut General Life	76,500
Connecticut Mutual Life	25,000
Equitable Life Assurance	95,000
Equitable Life of Iowa	3,200
Franklin Life Insurance	5,000
General American Life	3,500
Gulf United Corp.	2,500
Hartford Life	5,000
Jefferson Standard Life	2,500
John Hancock Mutual Life	102,000
Life Insurance of Georgia	2,500
Lincoln National	6,000
Massachusetts Mutual Life	44,000
Mutual Benefit Life	25,000
Mutual of New York	45,000
National Ben Franklin Life	2,000
National Life & Accident	10,000
Nationwide	5,000
New England Mutual Life	22,500
Northwestern Mutual Life	55,000
Old Republic Life of New York	1,000
Pacific Mutual Life	10,250
Penn Mutual Life	38,000
Phoenix Mutual Life	6,000
Provident Mutual Life	5,500
Prudential of America	355,000
Southland Life	1,000
Southwestern Life	3,000
State Farm Life	13,000
State Mutual Life	4,000
Sun Life Assurance	7,500
Teachers Insurance & Annuity	77,000
Transamerica Life & Annuity	4,500
Travelers Insurance	60,000
Union Mutual Life	5,000
United Benefit Life	14,500
Variable Annuity Life	1,750
Wausau Insurance	9,500
Total	$1,345,445

*Holdings as of 12/31/79 as reported in Best's Market Guide.

TABLE V Cont'd.

Buyers of Large Project Issues

HYDRO-QUEBEC:

	Amount* ($000)
Aetna Life	$95,838
American Life & Casualty	94
American National Financial	6,000
Connecticut General Life	9,445
Connecticut Mutual Life	9,445
Crown Life	5,000
Cudis Insurance Society	500
Cumis Insurance Society	500
Cuna Mutual	1,500
Equitable Life Assurance	94,450
General American Life	4,861
Great-West Life Assurance	5,000
Insurance Company of North America	19,833
John Hancock	50,000
Lincoln National Life	9,445
Massachusetts Mutual Life	14,168
Metropolitan	99,173
Mutual Benefit Life	14,168
Mutual of New York	9,445
National Life & Accident	4,000
New England Mutual Life	16,167
New York Life	61,392
Northwestern Mutual Life	28,890
Penn Mutual Life	9,445
Phoenix Mutual Life	9,445
Provident Life & Accident	5,000
Provident Mutual Life	3,000
Prudential of America	216,675
Teachers Insurance & Annuity	57,225
Transamerica Corp.	5,000
Travelers	28,338
Wausau Insurance	9,445
Total	$902,887

*Holdings as of 12/31/79 as reported in Best's Market Guide.

TABLE V Cont'd.

Buyers of Large Project Issues

ONTARIO HYDRO:	Amount* ($000)
Acacia Mutual Life	$2,000
Aetna Life	10,000
Aid Association for Lutherans	5,000
American United Life	6,000
Bankers Life of Iowa	3,000
Canada Life Assurance	2,500
Capital Holding Corp.	6,750
Central Life Assurance	2,000
Confederation Life	750
Equitable Life of Iowa	2,000
Federated Life Insurance	200
Franklin Life Insurance	2,500
General American Life	2,500
Great-West Life Assurance	1,500
Gulf United Corp.	2,000
Independent Order of Foresters	4,255
John Hancock Mutual Life	20,000
Kansas City Life	2,000
Liberty National	4,500
Lincoln Liberty Life	200
Lincoln National Life	10,000
Lutheran Mutual Life	2,000
Manhattan Life	2,000
Massachusetts Mutual Life	25,000
Metropolitan Life	100,000
Minnesota Mutual Life	3,000
Monumental Life	1,750
Mutual Benefit Life	15,000
Mutual of New York	12,900
National Ben Franklin Life	500
North American Life & Casualty	500
Occidental Life	3,000
Provident Life & Accident	5,000
Provident Mutual Life	5,000
Prudential of America	175,000
Southwestern General Life	500
Southwestern Life	1,500
Standard Insurance	2,800
State Mutual Life	6,500
Sun Life Insurance	2,500
Sunset Life	400
Travelers	25,000
Union Mutual Life	3,200
Unionmutual Stock Life	500
Volunteer State Life	750
Washington National Insurance	2,500
Western & Southern Life	3,000
Total	$489,455

*Holdings as of 12/31/79 as reported in Best's Market Guide.

TABLE V Cont'd.

Buyers of Large Project Issues

BRITISH COLUMBIA HYDRO & POWER:

	Amount* ($000)
Aetna Life	$10,000
Aid Association for Lutherans	5,000
America United Life	5,000
Bankers Life of Iowa	2,750
Bankers Life of Nebraska	2,000
Central Life Assurance	2,000
Connecticut General Life	17,000
Connecticut Mutual Life	5,000
Cudis Insurance Society	250
Cuna Mutual Insurance	2,200
Equitable Life of Iowa	3,350
Franklin Life Insurance	3,000
General American Life	3,000
Great Western Life Assurance	2,750
Home Beneficial Life	2,000
IDS Life	3,000
Independent Order of Foresters	2,250
Knights of Columbus	2,000
Life Investors Insurance	2,000
Lincoln National Life	10,000
Massachusetts Mutual Life	5,000
Minnesota Mutual Life	2,000
Monumental Life	1,300
Mutual Benefit Life	15,000
Mutual of New York	10,000
National Ben Franklin Life	1,000
Nationwide	5,500
New York Life	50,000
NLT Corporation	8,250
North American Co. for Life & Health	2,000
North American Life & Casualty	750
Pacific Mutual Life	10,000
Presbyterian Ministers' Fund	2,000
Provident Life & Accident	5,000
Provident Mutual Life	5,000
Prudential of America	110,000
Standard Insurance	2,000
Travelers	15,000
Union Cental Life	2,000
Union Mutual Life	4,000
Unionmutual Stock Life	500
Volunteer State Life	700
Western & Southern Life	2,500
Total	$344,050

*Holdings as of 12/31/79 as reported in Best's Market Guide.

TABLE V Cont'd.

Buyers of Large Project Issues

ALBERTA GAS ETHYLENE, LTD.:

	Amount* ($000)
Aetna Life	$29,904
Connecticut General Life	22,428
Equitable Life Assurance	41,118
John Hancock Mutual Life	56,070
Metropolitan Life	156,996
New England Mututal Life	11,214
Travelers Indemnity	56,070
Total	$373,800

TABLE V Cont'd.

Buyers of Large Project Issues

WYODAK PROJECT:

	Amount* ($000)
Aetna Life	$30,276
Bankers Life of Iowa	10,092
Connecticut General Life	15,138
Connecticut Mutual Life	5,046
Equitable Life Insurance	35,322
Franklin Life Insurance	3,027
John Hancock Mutual Life	25,230
Pacific Mutual Life	5,046
Teachers Insurance & Annuity	20,184
Transamerica Corp.	4,039
Union Mutual Life	3,532
Unionmutual Stock Life	505
Total	$157,437

*Holdings as of 12/31/79 as reported in Best's Market Guide.

FUNDING ESTIMATES

ANGTS - Project

CANADA

Introduction

Canada's commercial banking system consists of 11 privately-owned banks which at the end of 1980 operated 7,368 branches in Canada and 288 offices abroad. The total assets of the Canadian banking system at the end of March 1981 were Cdn. $294 billion, 91% of which were held by the five largest banks. Of total assets at the end of March, 6.4% were invested in Canadian government securities and call and other short terms loans; 38.7% in provincial, municipal and corporate loans and securities; 5.9% in mortgages; 10.9% in other dollar denominated loans and securities and 38.1% in foreign currency loans and securities.

The Canadian banking system is regulated by the Bank of Canada which operates under the Bank of Canada Act of 1934 (the "Act"). Banks are not subject to stipulated legal lending limits although they report on a regular basis to the Bank of Canada and their exposures are thus informally monitored. Nonetheless, the house limit of the top five chartered banks for a particular name tends to be significantly higher than the legal limit for a comparably sized U.S. bank.

The participation of the Canadian banks in the Alaska segment of the ANGTS system will depend to a great extent on their required commitment to the Foothills project. This will, in turn, depend on the coordination of the two financings and the extent to which non-Canadian banks are able to differentiate the Foothills and Alaska risks for legal and house lending limit purposes.

The Canadian public bond market absorbed Cdn. $17 billion in new issues in 1980, up an average 19.7% per annum over the 1976-1980 period. Of total volume in 1980, the Canadian government accounted for Cdn. $6 billion (35.7%), provinces and municipalities for Cdn. $9 billion (51.6%) and private corporations for Cdn. $2 billion (11.3%).

The non-bank institutional market in Canada consists of life and casualty companies, pension funds, trust companies and mutual and closed-end funds. At the end of 1980, this sector as a whole had total assets of approximately Cdn. $148 billion, which were invested principally in government, provincial and municipal securities, short-term corporate notes and preferred and common shares. Corporate bonds and debentures at that date represented approximately 24% of total portfolio.

The nature of the non-bank institutional and bond markets in Canada suggests that there would be little interest in either a public offering or private placement for the kind of complex pre-completion support arrangements that are contemplated in connection with the project. These markets might, however, provide viable refinancing alternatives after completion.

Export Development Corporation

The Export Development Corporation (the "EDC") is a Canadian Crown corporation which provides loans, loan guarantees and insurance to facilitate Canadian exports. In 1980, the EDC provided Cdn. $3.5 billion in export support, of which Cdn. $831.1 million represented loans and note purchases and Cdn. $299.3 million represented medium term insurance and guarantees. Approximately 22.7% of EDC's export support in 1980 was on behalf of importers in the United States, Central America and the Caribbean.

The EDC has indicated that they would not be particularly interested in financing a pipeline into the United States, although they have done so on occasion in the past. On U.S. projects, they try to avoid competing with commercial banks and would only offer financing if a third country was providing export credit at concessionary rates.

Assumptions

(1) Baa/A equivalent credit risk.

(2) Pricing fully reflective of project risks.

(3) Strong support from the U.S. banking community.

(4) U.S. $2 - 3 billion in availability from non-Canadian sources for the Foothills project.

Estimated Potential Capacity

$3,000 Million available in ten and twelve year tranches (75/25) with amortization beginning at the end of year five in both cases.

Exhibit I

CANADIAN CHARTERED BANKS

(In millions of Canadian dollars)

	TOTAL ASSETS (1)	CAPITAL FUNDS (1)(2)
Bank of British Columbia	2,338	85
Bank of Montreal	48,842	1,939
Bank of Nova Scotia	43,177	1,618
Canadian Commercial Bank	903	56
Canadian Imperial Bank of Commerce	55,428	1,935
Continental Bank of Canada	1,682	122
Mercantile Bank of Canada	4,115	177
National Bank of Canada	16,464	523
Northland Bank	253	22
The Royal Bank of Canada	62,834	2,650
The Toronto Dominion Bank	33,842	1,418

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(1) As of October 31, 1980.

(2) Including shareholders' equity, debentures and accumulated appropriations for losses.

FUNDING ESTIMATES

ANGTS - Project

MIDDLE EAST

Introduction

There are three principal sources of funds in the Middle East:

(i) Government owned private placement lenders such as the Saudi Arabian Monetary Agency ("SAMA")

(ii) Equity oriented individuals and government owned investment vehicles; and

(iii) Commercial banks.

Lenders in the Middle East are not generally subject to legal constraints on their exposure to any one borrower. They do, however, monitor their exposures within specified in-house parameters and the private placement market particularly tends to be very conservative with respect to credit risk. Neither the private placement market nor the banks are experienced in project lending.

Tenors in the private placement market rarely exceed ten years and are more typically seven to eight years. Pricing reflects the all-in cost to the borrower of alternative sources of fixed rate term funds (typically the U.S. or eurobond market). U.S. dollar denominated placements account for most of the private placement activity in the area although financing in other currencies is available from time to time. The largest corporate private placement done by SAMA was the recently completed $300 million for IBM. The private placement potential for a AAA corporate credit today is likely to be in the $300 - 500 million range. The market would, however, have little appetite for a Baa/A project credit.

Equity oriented investors are typically looking for a pure equity return or a debt placement in conjuction with equity. This sector tends to be dominated by the Kuwaitis. These investors could be interested in some form of equity cum debt placement in the project. This has political implications, however, which would make it untenable in the current environment.

The third source of funds in the Middle East are the commercial banks. At the end of 1980, the assets of banks active in eurocurrency lending (including Arab affiliated banks based outside of the region) were approximately $79 billion. Arab led syndications as a percentage of publicized eurocurrency credits increased from 1.3% in the first four months of 1980 to 12.0% in 1981. The top five Arab lead managers in the first five months of 1981 were Arab Banking Corporation, Arab Bank, Gulf International Bank, KFTCIC and the National Bank of Kuwait. Also important were BAII and the UBAF Group.

The commercial banks in the region are sizable and have become increasingly active in international lending over the last two years. Key to their interest in any transaction is the presentation of the deal and the position of the major indigenous banks relative to managers outside the region.

Assumptions

(1) Baa/A credit risk.

(2) Seven and ten year tranches (50/50) with amortization beginning at the end of year five in both cases.

(3) Pricing fully reflective of project risks including possibly some limitation and/or penalty on prepayments.

(4) Widespread participation by banks outside the region with unquestioned support from the U.S. banking community.

(5) Some form of management status or other special recognition for the key banks.

Estimated Potential Capacity

	IN MILLIONS OF U.S. DOLLARS
Bahrain	185
Egypt	40
Jordan	15
Kuwait	40
Qatar	5
Saudi Arabia	30
U.A.E.	25
Arab Banks Headquartered outside the Middle East	160
	$ 500

SELECTED MIDDLE EAST BANKS

TOTAL ASSETS, CAPITAL AND RESERVES AND ESTIMATED POTENTIAL LENDING CAPACITY

(In million of U.S. dollars, as of December 31, 1980, unless otherwise indicated)

	Total Assets	Capital & Reserves
Bahrain		
Arab Banking Corporation	2,611(a)	808(b)
Bank of Bahrain and Kuwait B.S.C.	843(c)	47(c)
Gulf International Bank B.S.C.	2,893	199(d)
National Bank of Bahrain	789	53
Egypt		
Arab African International Bank	2,783(e)	162(e)
Arab International Bank	1,353(f)	192(f)
Jordan		
Arab Bank Limited	6,640(c)	207(c)
Kuwait		
Al Ahli Bank of Kuwait K.S.C.	2,964(c)	167(c)
The Bank of Kuwait and the Middle East K.S.C.	2,414	113
Burgan Bank S.A.K.	1,506	99
The Commercial Bank of Kuwait S.A.K.	3,707	226
The Gulf Bank K.S.C.	4,306	257
The National Bank of Kuwait K.S.C.	5,064	297
Qatar		
Qatar National Bank	1,403(c)	77(c)
Saudi Arabia		
Al Bank Al Saudi Al Fransi	980(c)	78(c)
Al Bank Al Saudi Al Hollandi	842(c)	76(c)
The National Commerical Bank	9,403(g)	478(g)
Riyad Bank	4,212(h)	398(h)
Saudi American Bank	2,116	112
Saudi British Bank	862(c)	57(c)
United Arab Emirates		
Arab Bank for Investment and Foreign Trade	554	41
Khalij Commercial Bank Limited	364	33
National Bank of Abu Dhabi	5,006(c)	263(c)
Banks Headquartered Outside the Middle East		
Al Saudi Banque (Paris, France)	593(f)	32(f)
Arab Latin American Bank (Lima, Peru)	1,524	114
Compagnie Arabe et Internationale d'Investissement (BAII Group) (Paris, France)	2,749	115
European Arab Bank (Brussels, Belgium)	1,085(c)	33(c)
UBAF Associated Companies:		
UBAF France	5,008	140
UBAF Bank Limited	1,309	75
UBAE Arab Italian Bank	665	30
UBAE Arab German Bank	564	21
UBAN Arab Japanese Finance Ltd	402	19
UBAF Arab American Bank	1,029	72
Other Banks	N/A	N/A
TOTAL	N/A	N/A

(a) As of March 31, 1981.
(b) Paid-in Capital was increased from $375MM to $750MM effective April 1, 1981.
(c) As of December 31, 1979.
(d) Capital funds increased from $125MM on December 31, 1981 to $199MM on January 5, 1981.
(e) Figures are for the Group, including Al-Bahrain Arab African Bank EC (Bahrain), 82% owned, (assets $796MM, capital and reserves $35MM) and Oman Arab African Bank (Muscat, Sultanate of Oman), 55% owned, (assets $155MM, capital and reserves $7MM).
(f) Figures are as of June 30, 1980.
(g) As of November 8, 1980.
(h) As of May 14, 1980.

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Exhibit II

ARAB LEAD MANAGERS

EUROCURRENCY SYNDICATED LOANS

	1981 (1)			1980		
	RANK	NO. OF LOANS	AMOUNT $MM	RANK	NO. OF LOANS	AMOUNT $MM
Arab Banking Corporation	1	20	685.64	3	12	386.79
Arab Bank Limited	2	9	428.01	7	12	238.79
Gulf International Bank	3	17	390.03	1	34	742.30
Kuwait Foreign Trading Contracting and Investment Company	4	7	369.44	15	5	120.00
National Bank of Kuwait	5	10	200.66	5	24	310.83
Al Saudi Banque	6	8	178.68	28	5	23.14
Banque Arabe et Internationale d'Investissement	7	5	99.27	10	8	174.86
Arab Latin American Bank	8	5	93.25	6	11	241.00
UBAF Group	9	8	88.21	2	22	523.56
Saudi International Bank	10	9	83.83	4	15	363.03
National Bank of Bahrain	11	3	54.58	22	1	30.00
European Arab Bank	12	4	46.31	12	7	152.34
National Bank of Abu Dhabi	13	1	40.00	14	14	146.90
Industrial Bank of Kuwait	14	3	35.70	---	---	---
Libyan Arab Foreign Bank	15	2	29.72	16	3	100.96
FRAB Bank	16	1	25.00	---	---	---
Banco Arabe Espanol	17	3	19.72	11	8	161.83
Burgan Bank	25	1	4.72	31	2	13.00
Bank of Bahrain & Kuwait	26	1	4.72	34	1	5.00
Arab Bank for Investment & Foreign Trade	27	1	4.72	—	—	---
Allied Arab Bank	28	1	4.72	27	2	23.67
Bank of Kuwait & Middle East	29	1	4.72	--	--	---

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(1) First five months only.

(2) Includes Al Baab.

Source: Euromoney, July 1981.

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THE ARAB ROLE IN LENDING

PUBLICIZED EUROCURRENCY BANKS CREDITS (1)

(In billions of U.S. dollars)

	Borrowers		
	Industrial Countries	Non-Opec LDCs	All Borrowers (2)
1978	29.0	26.7	70.2
1979	27.2	35.2	82.8
1980	39.1	23.5	77.4
Jan - April			
1980	10.0	5.4	19.6
1981	12.6	10.5	27.0
Arab-led Syndications			
1978	1.4	2.4	6.9
1979	2.2	2.2	7.7
1980	3.3	3.2	8.0
Jan-April			
1980	0.6	0.2	1.3
1981	7.1	3.2	12.0
Arab-led Syndications as Percentage of All Lenders			
1978	5.1	9.0	9.9
1979	7.9	6.3	9.3
1980	8.4	13.5	10.3
Jan-April			
1980	6.0	3.4	6.5
1981	56.3	30.3	44.7

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1) Loans in which one or more Arab banks, including consortium banks, acted as lead or co-lead managers.

2) Includes OPEC, Communist contries, and international organizations.

Source: World Financial Markets

MAJOR MONETARY AGGREGATES

Exhibit IV

GULF STATES

	1976			1977			1978			1979			1980(2)		
	Money Supply(1)	Claims on Private Sector	Foreign Assets	Money Supply(1)	Claims on Private Sector	Foreign Assets	Money Supply(1)	Claims on Private Sector	Foreign Assets	Money Supply(1)	Claims on Private Sector	Foreign Assets	Money Supply(1)	Claims on Private Sector	Foreig Assets
Bahrain															
(Millions of Dinars)	303.8	267.9	162.0	361.8	310.8	166.2	432.2	325.4	209.6	443.3	375.8	232.6	515.6	417.1	323.0
(Millions of Dollars)	767.8	677.1	409.5	914.4	785.5	420.0	1126.0	847.7	546.0	1175.9	996.8	617.0	1367.6	1106.4	856.8
Qatar															
(Billions of Riyals)	2.702	1.559	1.708	3.567	2.464	1.973	4.116	2.889	2.429	4.511	3.278	2.637	4.986	3.398	3.16
(Billions of Dollars)	682.5	393.8	431.4	900.7	622.2	498.2	1072.2	752.6	632.7	1217.5	884.7	711.7	1369.6	933.4	868.1
Saudi Arabia															
(Billions of Riyals)	29.61	9.88	184.5	44.51	10.12	212.6	58.00	14.48	204.4	65.98	26.73	218.18	70.04	29.24	239.8
(Billions of Dollars)	8.39	2.80	52.3	12.70	2.89	60.6	17.50	4.37	61.7	19.61	7.94	65.02	21.76	9.08	74.51
U.A.E.															
(Billions of Dirhams)	16.75	10.47	14.87	15.53	15.83	2.08	17.58	19.36	2.24	18.22	21.22	3.36	19.81	23.27	4.4
(Billions of Dollars)	4.19	2.62	3.72	3.98	4.06	0.53	4.58	4.97	0.57	4.82	5.61	0.89	5.37	6.31	1.2
Kuwait															
(Billions of Dinars)	1.22	0.93	0.90	1.57	1.24	1.22	1.92	1.56	1.52	2.29	2.12	1.42	2.77	2.46	1.6
(Billions of Dollars)	4.25	3.24	3.14	5.60	4.43	4.36	7.06	5.74	4.86	8.38	7.76	5.20	10.33	9.18	6.1
Oman															
(Millions of Riyals)	164.6	120.2	30.4	206.6	167.1	105.8	230.6	198.4	67.1	246.2	222.6	188.0	318.0	262.4	311.
(Millions of Dollars)	476.5	348.0	88.0	598.1	483.8	306.3	667.6	574.4	194.3	712.8	644.5	544.3	920.7	759.7	932.

Exchange Rates	1976	1977	1978	1979	1980
Bahrain					
(US$/Dinar)	2.5275	2.5275	2.6052	2.6525	2.6525
Qatar					
(US$/Riyals)	0.2526	0.2525	0.2605	0.2699	0.2747
Saudi Arabia					
(US$/Riyals)	0.2833	0.2853	0.3017	0.2972	0.3107
U.A.E.					
(U.S.$/Riyals)	0.2504	0.2565	0.2606	0.2645	0.2711
Kuwait					
(US$/Dinar)	3.4849	3.5703	3.6792	3.6615	3.7310
Oman					
(US$/Riyals)	2.8952	2.8952	2.8952	2.8952	2.8952

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(1) Including Quasi-Money.
(2) Latest available figures.

Sources: IMF International Statistics and Central Bank of Kuwait. Quarterly Statistical Bulletin.

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Funding Estimates

ANGTS - Project

EUROPE

Introduction

The European commercial banking environment is generally characterized by a lower degree of regulatory constraints than the one prevailing in the United States. Each of the major countries (U.K., France, Germany, Switzerland, Italy, Holland) have three to five major institutions dominating the banking scene, with some of the larger banks having recently outpaced the major U.S. banks in terms of size (Deutsche Bank, BNP, etc.) or earnings (the British Clearers).

No uniform lending practices prevail in Europe. International activities are for the most part of a more recent nature. The appetite for international business is influenced strongly by both international and domestic considerations - as they change over time.

European banks generally are not constrained by legal lending limits; however, the very powerful and, until recently, very aggressive German and Swiss banks have become substantially less active. Balance sheet ratio requirements recently made applicable to worldwide consolidated statements severely restrict the Swiss Banks. Ratio requirements, which are presently under consideration and maybe imposed over the next few years in Germany, have forced the German banks to be increasingly restrictive in their lending activities.

The larger European banks have not shied away from committing $200MM to $300MM to any one borrower for any particular transaction, although they have been somewhat less aggressive recently.

In addition, one must recognize that only a limited number of European banks feel they are in a position to either analyze pure project risk, or to live with it.

In order to assess their willingness to finance a project like ANGTS, the following approach was taken:

- Two to three major institutions per country were contacted to discuss not only what they individually would be prepared to provide, but also what could be generated from the banking community in their country.

- Pricing was not discussed, but it was almost uniformly pointed out by the banks contacted that pricing "would have to stand on its own" in the absence of commensurate relationship benefits.

- Banks generally felt that the more complicated the credit structure of the project, the more time was needed for a decision. Banks warned against "tight schedules" which could only result in the risk of them not being able to participate at all.

The attachment shows the estimated amount, by country, that could be raised in Europe.

The nature of the project and the depth of the European institutional and bond markets make it improbable that anything but minor amounts could be raised in these markets prior to completion of the project.

Export Finance

Export finance at attractive rates can be raised in the U.K., France ant Italy. Generally the export finance agencies do not accept project risks. The credit structure would have to be fairly straight forward to obtain financing from any agency without commercial bank guaranties to cover the project risk. Predicting precisely how the agencies would react is impossible at this time as the agencies would need to see the formal credit structure before they would provide any indication of interest.

The U.K. export credit scheme is fairly formalized. In Italy and to a lesser extent in France, the details of export finance depend on actual negotiations on a case by case basis. Germany does not provide export finance to developed countries. Export guaranties could, however, be available. They are expensive and maturities of longer than 4 to 5 years for this project are most likely not available.

Assumptions:

(1) The perceived participation by the American and Japanese banking communities is very strong.

(2) Full pricing of the loan to reflect project risks.

(3) No further deterioration in the capital ratios of the German or Swiss banks.

Estimated Potential Capacity

Country	Amount US $Millions
Austria	150
Belgium	250
France	500
Germany	850
Holland	300
Italy	300
Scandinavia	300
UK	1,050
Rest of Europe	300
TOTAL	4,000

TENOR: Ten year final maturity; seven and one-half year average life from date of commitment.

FUNDING ESTIMATES

ANGTS - Project

ASIA

JAPAN

Introduction

The participation of Japanese banks in financings of a pure project nature has been extremely limited, and those instances to date of their participation have been principally on a government-to-government basis. In Japan there are legal lending limits which vary depending upon the type of financial institution. For the major city banks it is 20% of capital plus reserves; for the long term banks and trust banks it is 30%, and for the Bank of Tokyo it is 40% (see Exhibit I). Although these legal lending limits technically only apply in the case of Japanese borrowers, this system extends on an informal basis to foreign borrowers in terms of setting country limits and foreign corporate borrowing ceilings. Because of the high legal lending limits it is unlikely that this would be the constraining factor but rather the complexity of the project, the lack of direct government participation and the informal guidance which may be imposed by the Ministry of Finance as to the extent of the participation by Japanese banks. The impact of a change in the Ministry of Finance guidelines is exemplified by the dramatic drop in the level of activity of Japanese banks in the syndicated loan market when comparing 1979 to 1980 (see Exhibit II). The Ministry of Finance guidelines have been relaxed recently, although until April Japanese banks had only been allowed to participate up to 25% in any Eurodollar loan with certain exceptions, they are now allowed to participate up to 50% if the Japanese lead manager(s) are underwriting 50% of the loan. In regard to this specific financing, the potential market will consist principally of the 26 Japanese banks listed in Exhibit I.

The life insurance and fire and marine insurance companies became active in participating in yen loans to non-Japanese borrowers in 1978. These institutions began looking outside of their normal parameters as a result of the lack of domestic investment alternatives coupled with their tremendous growth and their desire to diversify. Their long-term source of funds gives them a natural base to extend fixed rate long-term commitments. The insurance companies, though, are still newcomers to international financings and presently are restricted from lead managing yen loans and limited by investment restrictions imposed by the Ministry of Finance. To date these institutions have not participated in any project financings. Additionally, under present Ministry of Finance guidelines yen loans cannot be arranged for non-residents unless the borrower is a supra natural organization, a Japan-related energy project, or an export related financing.

Although the Samurai bond market (yen bonds issued by non-residents) has been extremely active in 1981 with a greater volume of issues in the first half year (Y 277.5 bn) than all of 1980 (Y 261 bn), this is still a very restricted market in terms of the type of issuers allowed to use it. To date the list of issuers has been restricted to international organizations, governments and foreign government agencies with the exception of one corporate issue for Sears Roebuck (AAA) in March, 1979. At present and in the near future, therefore, this would not be a likely source of funds for such a project given: the present Ministry of Finance guidelines on eligible issuers, the present investment restrictions on pension funds, and the long queue of eligible candidates. These same problems basically apply as well to the domestic private placement market (Shibosai) which is utilized mainly by developing countries.

The project, though, should be favorably viewed by most of the Japanese banks for the following reasons:

(1) the potential benefits this project offers to Japanese exporters of machinery and equipment;
(2) the positive supply/price impact on Japan's energy situation;
(3) the visibility of the financing; and
(4) the assumed high level of participation by the international financial community.

Although Japanese commercial banks have, on occasion, extended loans with maturities as long as fifteen years, it is unlikely that they would go beyond 10 years for this project.

Export Import Bank of Japan

The traditional and most actively used method for financing Japanese exports by the Export-Import Bank of Japan and commercial banks under official Government sponsorship is "Suppliers Credit". Under this program loans are provided to Japanese exporters, in yen, at a fixed rate of interest, currently 8.5% for terms up to 5 years and 8.75% p.a. for terms up to 8 1/2 years. This source is available up to 85% of the export amount with Export Import Bank of Japan providing 70% of this amount directly and commercial banks providing 30%. The borrower (Japanese exporter) is required to provide security for the loan in the form of Export Proceeds Insurance issued by the Ministry of International Trade and Industry (MITI) and a letter of guarantee or letter of credit issued by a first class foreign banks or banks. MITI has a program to provide Foreign Exchange Risk Insurance which enables a Japanese exporter to provide financing to importers in U.S. dollars and other hard currencies.

"Buyer Credits" are provided by the Export-Import Bank of Japan but normally only to foreign governments, foreign government agencies and government owned financial institutions. Usually the amount involved exceeds the Japanese yen equivalent of $100,000,000. The repayment term and interest rate are the same as for supplier credits; however, MITI insurance is not required.

It would be unusual for a "Buyer Credit" to be made available to an importer which is not owned or guaranteed by the government of the importer's country. However if a prime foreign bank will provide a guarantee, the Eximbank will seriously consider an application.

Under supplier and buyer credits capitalization of interest may be allowed; the amount eligible is 80% to 85% of the contract value and amortization will commence 6 months after completion of construction.

Although it is unlikely that the Export-Import Bank of Japan would accept project risk and waive its requirement for bank guarantees, efforts should be undertaken to determine its attitude on this project at an early stage. If the Eximbank insists on guarantees it should be determined whether alternative guarantees would be acceptable in order to reserve the banks for direct loans that are not related to exports. Such alternatives could be insurance companies, trading companies, and other corporations. Clearly to the extent that a prime bank guarantee is required for this facility, it may not be cost effective and may reduce amounts available from banks in other geographic areas.

Assumptions

(1) The borrower would be a Baa/A credit,

(2) The pricing would be fully commensurate with the risk involved in terms of the spread, the benchmarks utilized for pricing, and the options available to the lenders on the pricing structures.

(3) The total amount of exports sourced from Japan is assumed to be $700-900 million consisting of pipe ($400-500 million) and booster stations ($300-400 million).

(4) The project needs to be perceived as possessing national interest status preferably through formal U.S. governmental pronouncements.

(5) It will be important to have a high level of participation by U.S. commercial banks in order to insure high commitment levels from other geographic sectors. This is especially crucial because of the lack of relationship benefits which will be derived from participating in this financing.

(6) The various financing avenues of dollar syndicated loans, yen syndicated loans, public and private bond issues, and the export credit financings should be done in distinctly separate transactions to maximize the total take from this market.

Estimated Potential Capacity

(In Thousands of U.S. Dollars)

Commercial banks	$1,700,000	$2,250,000
Export Credit	700,000	900,000
TOTAL	$2,400,000	$3,150,000

AUSTRALIA/NEW ZEALAND

Depending on the strength of the underlying corporate relationships it is possible that a maximum of $100 million could be raised from the Australia/New Zealand area but with $50 million being the more likely amount. The banks from this region have tended to be conservative, extending maturities only beyond 10 years for Australia/New Zealand domestic development projects.

In all likelihood there will not be any institutional or export money available from this area.

SOUTH EAST ASIA

Due to the strong exchange control restrictions prohibiting lending by indigenous banks in order to conserve their foreign exchange, involvement of regional banks in Euro-syndications has been mostly to the extent that these relate to borrowings by their own governments, with the exception of Singapore, Hong Kong and India.

In all likelihood there will not be any institutional or export money available from this area.

LATIN AMERICA

It is felt that a total of $250 million could be raised from the area, however, an amount of $150 million is thought to be more realistic. Within the area the greatest interest is anticipated from Mexico. Limited sums could be sourced from Venezuela and Argentina, with little interest from the Brazilian market due to their cost of funds and need to finance domestic development and Brazilian trade.

In all likelihood there will not be any institutional or export money available from this area.

Exhibit I

JAPANESE BANKS

CITY BANKS

	Assets less contra accounts	Total deposits	Capital and reserves	Legal lending limit	World Ranking	
					'80	'79
Dai-Ichi Kangyo Bank	79,451	61,971	2,783	557	10	10
Fuji Bank	70,265	56,495	2,689	538	12	14
Sumitomo Bank	68,749	55,654	2,450	490	13	16
Sanwa Bank	64,239	51,870	2,283	457	14	18
Mitsubishi Bank	62,665	54,446	2,534	507	16	17
Mitsui Bank	48,545	37,681	1,560	312	29	36
Tokai Bank	47,176	37,315	1,700	340	31	35
Taiyo Kobe Bank	43,309	35,054	991	198	39	42
Bank of Tokyo	42,371	31,892	1,428	571	41	43
Daiwa Bank	37,298	30,933	667	133	51	49
Kyowa Bank	29,756	22,906	669	134	62	66
Saitama Bank	23,641	19,444	568	114	77	84
Hokkaido Takushoku Bank	19,952	15,545	433	87	87	95
		LONG TERM BANKS				
Industrial Bank of Japan	49,946	48,315	1,348	404	26	22
Long-Term Credit Bank of Japan	43,539	39,644	847	254	38	39
Nippon Credit Bank	27,829	25,168	815	245	68	72
		TRUST BANKS				
Mitsubishi Trust and Banking Corporation	37,896	35,473	1,169	351	48	52
Sumitomo Trust and Banking Company	35,492	33,198	1,162	349	54	57
Mitsui Trust and Banking Company	34,095	31,140	978	293	56	63
Yasuda Trust and Banking Company	26,486	24,663	709	213	70	79
Toyo Trust and Banking Company	22,000	20,759	599	180	82	85
Chuo Trust and Banking Company	11,798	10,908	250	75	128	141
Nippon Trust and Banking Company	6,609	6,051	230	69	197	212
		LOCAL BANKS				
Bank of Yokohama	18,276	15,800	818	164	95	96
Shizuoka Bank	11,979	10,507	748	150	126	134
Chiba Bank	11,608	10,527	524	105	129	137

Source: THE BANKER, June 1981

Exhibit II

SYNDICATED LOAN RANKINGS*

For Japanese Banks

	Market Ranking		Volume (millions)		No. of Loans	
	'80	'79	'80	'79	'80	'79
Bank of Tokyo	10	3	18,421.74	26,240.03	84	128
Dai-Ichi Kangyo Bank	29	27	12,742.62	11,142.50	45	53
Industrial Bank of Japan	31	22	10,238.18	11,633.18	29	58
Fuji Bank	37	10	8,910.11	15,096.07	31	68
Mitsubishi Bank	38	11	9,117.64	14,953.01	28	76
Long-Term Credit Bank of Japan	40	15	9,495.98	15,179.16	34	108
Sanwa Bank	44	33	9,976.29	10,112.31	33	57
Sumitomo Bank	45	12	7,431.65	15,381.63	24	95
Mitsui Bank	50	41	8,401.24	7,054.54	25	45
Tokai Bank	56	37	5,659.79	8,931.50	19	55

*Full credit to each manager.

Source: CAPLOAN International Finance Data, Inc.

FUNDING ESTIMATES
IN THOUSANDS OF U.S. DOLLARS

ASIA

Japan		
Commercial banks	$1,700,000	$2,250,000
Export Credits*	700,000	900,000
Australia/ New Zealand	50,000	100,000
Hong Kong	10,000	10,000
India	20,000	20,000
Singapore	20,000	20,000
Subtotal	$2,500,000	$3,300,000

LATIN AMERICA

Mexico	$ 70,000	$ 100,000
Venezuela	20,000	40,000
Argentina	20,000	50,000
Brazil	20,000	30,000
Chile	20,000	30,000
Subtotal	$ 150,000	$ 250,000
TOTAL	$2,650,000	$3,550,000

* To the extent that a prime bank guarantee is required this may reduce the amounts available from the other geographic regions.

Mr. **Weaver** [presiding]. The gentleman from California.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. Tucher, to what extent, if at all, would your bank's participation as a lender in this project be affected if tomorrow or next week the Congress would deregulate totally all categories of natural gas prices in this country?

Mr. **Tucher**. Congressman, as I said in my opening remarks, we will have to be satisfied by the economic viability, including the marketability of the gas. We have not as yet conducted any studies on the subject——

Mr. **Dannemeyer**. Don't give me that.

Mr. **Tucher** [continuing]. And I don't have the answer. I simply do not. All I can tell you is we are taking a credit risk. The credit risk is that the shippers are going to be obligated to buy the gas. They have told you in testimony today that they believe the gas is marketable. We will have to be satisfied that they are right, but we are taking their obligation.

Mr. **Dannemeyer**. You see they are in the position of coming to you with their hat in hand. You are a prospective lender, and you will determine whether or not the project will fly.

We all know that. So that is the question, again, and if you could answer the question yes or no, or, if you say you can't answer it—that is what you have said so far—if that is your best answer, it gives this Member from California a certain problem, because if it isn't obvious by now, one of the deep concerns I have about this package is I don't want to vote or have my vote, if it went that way, be considered as building a constituency for continued regulation of natural gas prices in this country.

I think it is decidedly in the interests of this country to do the opposite; that is, to deregulate promptly and immediately, and I don't want to have anything take place that would work against that objective. You finessed on the issue.

Mr. **Tucher**. Our bank has consistently advocated relying on market forces to the maximum extent possible. I share that view.

Mr. **Dannemeyer**. You never want to let principle get in the way of lending money; is that what you are telling me?

Mr. **Tucher**. I do not know at this point whether it would adversely affect the project economics.

Mr. **Dannemeyer**. Thank you very much.

Mr. Lewand?

Mr. **Lewand**. I find it difficult to respond as well, though I will try. You should tell me what the effect of deregulation of gas will be. I really don't know the answer.

Mr. **Dannemeyer**. Let me spell it out for you, as I understand it.

You see, today, the wellhead price of gas, on the average, is a little less than $2 per mcf. There is good evidence to indicate that if deregulation happened tomorrow, the price of that would go up to about $5. Now, if the roll-in price for the domestic lower 48 States gas went from $2 to $5, that is going to affect the price the consumer is going to be willing to pay for this gas coming off of Alaska that in 1980 dollars, in 1987 is going to cost about $10. In other words, for Alaska gas to be sold in the lower 48 States, in a way you could argue it requires a lower price for the roll-in. Perhaps the percentage of the mix from Alaska is not all that crucial in terms of the overall picture, but some people will argue that the economic viability of this package is involved in the issue of keeping lower 48 States natural gas prices as low as they can be so it keeps overall natural gas price down so that a certain volume of gas will be sold. Now, that is the background of the question that I am asking.

If I go to a banker and say, "If a policy decision is made by Government that will perhaps adversely affect the marketability of the product, are you still interested in making the loan?" That is putting it in a devil's advocate position.

Were you here today when the representatives from, well, the pipeline companies were here when I asked this question, and also the three producers were here, and the producers particularly, without equivocation, if I understood them correctly, said that deregulation would not affect at all their participation in the project, and they are putting their equity on the line. I don't know whether that is something on the other side of the ledger, but that is the background that makes me ask this question.

Mr. LEWAND. I think it is probably an appropriate question. When I would be asked questions of this nature, I would usually call on consultants to give me the answer because I cannot define what would be the effect of deregulation, either immediate or phased, on tomorrow's gas price or on the gas price over a period of years.

I think one of the producers suggested that in his opinion perhaps the deregulation of gas might even enhance the economic viability of this project. I would be the last one to disagree with him. I am saying that we as bankers play this game a step at a time, and we approach a lending proposition each time, and we cover every issue that we can possibly get a fix on. The fix on the cost of the pipeline, the impacts of deregulation all have to be cranked in. You can't get a simple answer.

Mr. DANNEMEYER. I appreciate what you are saying, but is your bank saying that as a condition of being a lender in this project, that we must have continued price regulations on natural gas?

Mr. LEWAND. Absolutely not.

Mr. DANNEMEYER. How about you, Mr. Tucher?

Mr. TUCHER. Absolutely not.

Mr. DANNEMEYER. Mr. Jenks, is your bank saying that?

Mr. JENKS. No, sir.

Mr. GRAHAM. No, sir, we are not.

Mr. DANNEMEYER. Thank you.

As a matter of curiosity, I am interested in finding out the rate that you bankers would be interested in charging for this loan. Do you project a fixed rate, and, if so, what rate are you talking about, or is that something you dare share in public?

Mr. LEWAND. We have no problem talking about it. We don't anticipate a fixed rate. There is very little fixed-rate lending occurring in the banking business today.

Mr. DANNEMEYER. That is because you bankers are tinkering with the interest rate so much.

Mr. LEWAND. We are at fault, always.

Mr. DANNEMEYER. What rate are you beginning the variable at?

Mr. LEWAND. We have not discussed rates among ourselves or with the sponsors. We have to have a financing plan. We have to try to make a determination when rates are discussed that they should follow risk to some extent. It is a complex negotiating process and surely we won't know what the rate is until we are well down the pike and see what we have before us.

Mr. DANNEMEYER. What duration are you projecting for the package? What payback?

Mr. LEWAND. I think that the payback period—again not negotiated—we don't want to try to negotiate this financing package here and this afternoon, but normally banks are inhibited policywise or otherwise from making loans significantly beyond 10 years. I would say that normally you would like to see your loans paid out after construction has been completed. I would say that the U.S. banks' lending tolerances might be in the range of 5 to 10 years.

Mr. DANNEMEYER. Thank you very much.

Mr. WEAVER. Five to ten years?

Mr. LEWAND. Yes, sir.

Mr. WEAVER. And the loan would have to be renegotiated? Would the entire principal be paid back in that time?

Mr. LEWAND. I am talking about normal practice. Certainly if you wanted to follow your line of possible questioning, we will not make loans for 20 years. Somewhere less than 20 years. In the range of 10 years is probably the maximum we are willing to commit for.

I hope I am not preempting anybody on the panel.

Mr. TUCHER. In the funding study which the banks conducted, they found that the maximum term, on the average, for final maturity was 10 years. In answer to your question about what happens at the end, yes, indeed, there will be a significant amount of refinancing that has to take place. Banks will have to take a view as to whether that is a reasonable risk to take. Right up front, I think the view is if the project is up and running at that point—refinancing may be possible. Traditionally that has been a risk construction lenders have had to reassess.

Mr. SHARP. There would be a big balloon payment at the end of the 5 or 10 years.

Mr. TUCHER. It would probably be more than one balloon. There would probably be a series of maturities.

Mr. SHARP. Do you fellows insist on this prebilling, that the customer has to be on the hook?

Mr. TUCHER. No, Mr. Chairman, we definitely did not.

Mr. SHARP. You didn't?

Mr. TUCHER. What our letter of August 28 said, which has been introduced in the record, was that we needed creditworthy parties during the precompletion period to support the debt. We suggested that the principal parties that would seem to be available would be the pipeline sponsors, the producers, other interested parties such as the State of Alaska and others we may not have identified, and possibly the consumers.

What we will need is some combination of those. Now, the precommencement billing that is proposed in this waiver is exceedingly limited. If you will bear with me for a moment and think of this as being a project in three segments, two segments in Alaska, the plant and the pipeline, and the Canadian segment. As far as the lenders to either of the two Alaskan segments are concerned, what we are really talking about is protecting the lender to either of those segments against the risk of noncompletion of a segment they have nothing to do with.

Mr. WEAVER. One of the witnesses said you would think of it all as one loan, as one payor, but, therefore, what you say is there will be several different loans. The Canadians will have one loan; the conditioning plant might have another loan, and so forth.

Mr. TUCHER. Yes; there is no difference between me and Mr. Graham on the issue of one loan and one risk; I would say that the three risks are substantially the same, and you cannot separate them and say the lenders will lend their legal lending limit or policy limit for one, and another, and a third.

Mr. GRAHAM. We are talking about a risk after completion, when the tariff is in effect. It is at that point in time when the total system could be viewed as one borrower because it has one source of repayment, which is the effective tariff. It is not prior to the effective date of the tariff, during the construction phase, during the pre-completion phase—I don't think we know, today, how many different loans we might have to how many different parties. We are not that advanced on the structuring of the financing. We know for certain there would be one group of lenders lending to Canada and another group of lenders lending to the Alaskan segments.

Now, how many different groups there might be in the Alaskan segment, we are not aware of at this point.

Mr. WEAVER. One of the witnesses yesterday, in response to a member's question, said, do you think the money is available? And the witness responded, oh, there is lots of money out there if they want to lend it.

Is that correct? We in the Congress hear a different story. Is there a lot of money available now to lend?

Mr. GRAHAM. Our funding availability study indicates there is somewhere between $12 billion and $18 billion available to a single borrower if that borrower has at least the risk equivalent credit criteria of Baa.

Mr. WEAVER. You are not taking an equity position of any kind?

Mr. TUCHER. You are correct.

Mr. WEAVER. How about the tax advantage? I just ran into a California individual. They were giving the borrower an interest return. The borrower was getting three-quarters of 1 percent from the money because the bank was getting tax advantages. Would you request any of the tax advantages?

Mr. GRAHAM. We haven't the income to take advantage of them, unfortunately.

Mr. SHARP. The gentleman from Ohio is recognized for 5 minutes.

Mr. BROWN. Is this a Baa project?

Mr. GRAHAM. We expect to participate in the structuring of a Baa-type project.

Mr. BROWN. What does that mean in non-banking language?

Mr. GRAHAM. The request that we have made of the company to provide additional credit support for the partnership, in our judgment, would bring it to that equivalent type of level.

Mr. **Brown**. You requested the company or companies?

Mr. **Graham**. The partners. The Alaskan Northwest partnership.

Mr. **Brown**. The pipelines?

Mr. **Graham**. The pipelines; yes.

Mr. **Brown**. To do what?

Mr. **Graham**. To substantially improve the credit support over the proposal that they gave to us in May.

Mr. **Brown**. What does that translate into in terms of their participation?

Mr. **Graham**. It translates to a substantially increased risk on their part.

Mr. **Brown**. I am having a little difficulty hearing you, but when I do hear you, I don't understand the answers.

Mr. **Graham**. It is a substantially increased risk on their part.

Mr. **Brown**. What does that mean? I am not a banker.

Mr. **Graham**. If you go back to the letter that was agreed to by the sponsors and the producers, I believe in that letter it suggested the sponsors will take a $5.2 billion equity-type risk. From listening to Mr. McMillian's testimony yesterday, he indicated that the sponsors are now prepared to take something in excess of an $8 billion equity-type risk.

Mr. **Brown**. Is that sufficient for your requirement of Baa?

Mr. **Graham**. It is sufficient to raise $8 billion, as a Baa or better.

Mr. **Brown**. And $8 billion will not finance the project; is that correct?

Mr. **Graham**. It certainly will not.

Mr. **Brown**. You are being correct in an obscure way, but I guess that is not unusual for people in your profession.

In the 7-page letter of August 28, do you spell out what your current assessment is of what you would like to have, or is there a later letter than that?

Mr. **Graham**. That is the latest letter that we have provided to the companies.

Mr. **Brown**. And does that spell out all the terms that you have asked for?

Mr. **Graham**. It spells out all the terms that we have suggested to them that they consider, to date.

Mr. **Brown**. Does it spell out all the terms you want—to date?

Mr. **Graham**. We haven't even begun to negotiate a loan agreement.

Mr. **Brown**. Have you ever thought of labor relations?

Mr. **Graham**. Maybe it might help you to understand what I am saying when I give you a little background. You were not here for the background comments.

Our first job, which started in June, was to take a financing plan that had been presented to us by the partners, review it and advise them as to whether or not it was feasible. Our advice was, fairly simply, no, it is not feasible.

Here are some things we think you have got to do in order to pursue this financial approach, and they are that you must provide more credit support to the banking community's participation.

That was a pretty big pill for the partners to swallow. At that point in time, they sincerely believed that they could arrange substantial financing on a nonrecourse basis. We had to disabuse them of this, at least from the four banks' position. That is fundamentally what is contained in our letter of August 28.

Mr. **Brown**. You used the term that I want to separate into two terms. One is the downpayment. That is the equity part of that financing effort. Equity is the downpayment, right, on the project?

Mr. **Graham**. Not in my view; no. The downpayment in that sense is not only the equity but the debt that they are prepared to support, stand behind, provide the necessary completion assurances—there are a number of ways of phrasing it. That is what they are going to be at risk for until the project is completed, until the tariff becomes effective.

Mr. **Brown**. And that is how much?

Mr. **Graham**. According to Mr. McMillian's testimony, it is something in excess of $8 billion.

Mr. **Brown**. That is what percent of your estimate of the cost of the project?

Mr. **Graham**. I don't have an estimate of the cost of the project.

Mr. **Brown**. The estimate that you are using——

Mr. **Graham**. It is $27 billion.

Mr. **Brown**. That is $8 billion of $27 billion.

Mr. **Graham**. It is $8 billion of $27 billion.

Mr. **Brown**. I realize I may not be doing this right, but that is $19 billion the way I figure it.

Mr. **Graham**. I think your arithmetic is the same as mine.

Mr. **Brown**. I am never sure.

That, then, means that the $19 billion is to be put up by you, or does the $8 billion include the money that is put up by the oil companies?

Mr. **Graham**. The $19 billion would include the amount that is put up by the oil companies.

Mr. **Brown**. How much now, $19 billion?

Mr. **Graham**. It would include the amount put forward by the oil companies.

Mr. **Brown**. And that is how much?

Mr. **Graham**. I don't know. I would have to go back and read their testimony or the remarks they made today.

Mr. **Brown**. The figure we heard this afternoon, as I recall, was somewhere around $10 billion. I think the gentleman from Exxon said $3.3. The gentleman from Arco said approximately the same amount, and the gentleman from Sohio said something less than that, about $2.5 billion, as I recall, and that comes out about $9 billion or $10 billion.

Let us assume it is $9 billion. Then the issue would be $10 billion.

Mr. **Graham**. My arithmetic squares with yours.

Mr. **Brown**. Are you, or are you not, given the waiver package that is prepared at this point to accept the $10 billion share of this operation on a debt basis?

Mr. **Graham**. Absolutely not.

Mr. **Brown**. The answer is no?

Mr. **Graham**. The answer is no.

Mr. **Brown**. And you are suggesting that the maximum that you would go would be how much?

Mr. Graham. We haven't had an opportunity to determine whether or not we would provide any funds to the project on a nonrecourse basis.

Mr. Brown. Now, what do you mean specifically, what do you mean by nonrecourse basis?

Mr. Graham. Funds which are not supported by a credit-worthy entity.

Mr. Brown. No capital assets behind it; is that what you mean?

Mr. Graham. No earnings behind it to repay the debt in the event the project is not completed, or the tariff does not become effective.

Mr. Brown. I don't want to make you laugh now, but the full faith and credit of the Federal Government, the prospect that the Federal Energy Regulatory Commission has said that the consumers will pay the interest and the debt—as I understand it, that is part of the waiver package—is not sufficient?

Mr. Graham. No, I didn't say that. When the tariff becomes effective, and presuming the tariff is aceptable to us—and, of course, certain of the waiver conditions which are related to it are passed, it is our considered judgment at this point in time that we will not need other sources of credit support.

Mr. Brown. But until it is, you want some specific guarantee of a method by which you will receive your principal and interest payment.

Mr. Graham. Correct.

Mr. Brown. And that would either be the assets of the pipeline consortium, or some asset portion of the oil companies? Which?

Mr. Graham. A combination of a number of things, which I don't think have been thoroughly covered at this point in time.

We haven't been advised as to what that final combination is. We only heard yesterday from Mr. McMillian the sponsors were prepared to stand behind the debt and equity to something in the neighborhood of $8 billion. We heard today from the producers what their position is. And now we sit down with the Alaskan Northwest partners and determine where we go from here.

Mr. Brown. Now, the consumer in this situation, after a certain point—that is, there are certain requirements for the pipeline investment, and the consumer getting charged for his construction work in progress, up-front money before he gets the gas, but there are also points at which the pipeline will proceed before the consumer is obliged to pay, but at some point he starts paying and may not get any gas as a result of his contribution. But you say he is in a better position than you are, or worse?

Mr. Graham. I don't see them as being comparable. I am lending money.

Mr. Brown. And he is——

Mr. Graham. Obtaining the opportunity to get gas.

Mr. Brown. He is lending money first on an if-come proposition, is he not? The way it is written at this point.

Mr. Graham. I don't think he is lending money.

Mr. Brown. The consumer has no equity assurance the way the waiver package is drawn; is that correct?

Mr. Graham. I have never won an argument on construction-work-in-progress, but I have never lost one, so I really don't think I can help you in that particular area. I can explain to you what my understanding is of the commencement-of-billing provision. I can have my regulatory counsel explain it, but that is the best I can do.

Mr. **Brown**. As I understand the situation, the consumer will pay something toward the project in the situation in which the project may never get completed, and, therefore, he may never get any gas.

Mr. **Graham**. That is my understanding.

Mr. **Brown**. And if the project is not completed, he has no equity guarantee of any kind. Is that correct?

Mr. **Graham**. To the best of my knowledge, the commencement of billing requires him to pay as long as he wants to buy the gas. If he chooses not to buy the gas, he doesn't pay.

Mr. **Brown**. And the gas will be delivered later?

Mr. **Graham**. No, the gas he is buying from the distributors.

Mr. **Brown**. He is paying a premium on the gas he is buying now to help get gas later.

Mr. **Graham**. That is correct, and he keeps paying until he decides not to buy gas.

Mr. **Brown**. And if we were not in the project, then the consumer would not be paying more for the gas that he is using now; he would be paying the current price.

Mr. **Graham**. He would be paying the then market price for gas, whatever that might be.

Mr. **Brown**. It seems to me that he is not quite getting as good a deal as you want.

Mr. **Graham**. I can't make any value judgments, except as a consumer.

Mr. **Tucher**. I think the consumer is getting a different deal from the deal the lenders are getting. The lenders are, in fact, looking for assurance that they will get their money back, and they are getting an interest return for their loans.

What the consumer is doing is taking a certain amount of risk. Now, by definition, taking risk means you don't have a guarantee. Risk is, in effect, betting a certain amount now in return for a future benefit. Whether that is a good bet or not a good bet, I can't tell you, but I can tell you that a couple of checks and balances are in place here that should protect the consumer.

First of all, the consumer is, in effect, coventuring with equity owners who are risking a great deal of money and who get nothing if the project is not completed.

The equity only gets a regulated rate of return. The consumer is the residual beneficiary of this project, because all that the owners get is a regulated rate of return which will, in fact, be penalized if they don't bring the project in within the cost estimates approved by the FERC.

If sponsors spend more than that, they get a lower rate of return, a penalty rate of return. The consumer—because this is a cost-of-service project, is the one who, in effect, is the ultimate equity owner because he is the one who will either pay more or less for the gas, depending on what the final cost of this is project turns out to be. The FERC is the arbiter of whether this arrangement serves the public convenience and necessity.

Mr. **Brown**. Let me redirect my question just a bit in this way. The risk that the banks take, if you wanted equity participation, is pretty limited, then; is it not?

Mr. **Tucher**. We are not taking equity participation. You were not present when we made our opening statements, but my remark was——

Mr. **Brown**. I misunderstood Mr. Graham's comment, then, that you wanted some physical asset—not necessarily physical—I assume corporate stock would be accepted.

Mr. **Tucher** [continuing].All we want is an undertaking from a credit-worthy party, a promise to pay or guarantee payment from a credit-worthy party which is presumably the sponsors or the producers, or might be the other beneficiaries or might be the consumer. We are not equity investors. We are lenders who expect to get our money back with a high degree of certainty, and I can tell you in order to raise this kind of money from the world capital markets, it——

Mr. **Brown**. Have you set an interest rate on that money?

Mr. **Tucher** [continuing]. No, sir, we have not.

Mr. **Brown**. What would it be in terms of the current prime-plus? Do you have any general guidelines?

Mr. **Tucher**. I wouldn't dare to venture a guess on that at the moment. I can tell you that to raise these enormous amounts of money, it will have to be an attractive rate, because you are asking people to lend unprecedented amounts of money, and you are asking, in effect, that everybody participate.

Mr. **Brown**. Let me make an observation. The people who are asked to finance the project, at least in terms of the consumers' end of the financing, I think probably are not very well informed about this issue. Most of them do not know that they will be committed to pay higher prices for gas on the basis of guaranteeing this project or helping to guarantee the loan, in the hopes that they will get natural gas in the future. I sense that, at least. I am not sure any of my consumers are aware of that issue, and I would hope that they will be as a result of these hearings or as a result of the natural gas pipeline making it clear to them what kind of investment they will be making, in assuring a future supply of gas.

The other thing I am curious about is what the bankers feel—I have two questions, and I will ask them both at the same time and you can discuss them as you will.

First, how do you feel about the danger that the consumers might react if the price of gas is so much higher than, say, the going rate of oil over the next few years when the gas is delivered, and switch out of gas and just simply not be in a position—not be paying that "construction work,in progress" up-front money because the market for high-priced gas is—the market for gas is higher than the market price of oil, and, therefore, there is a switching from one energy product to another.

Does that concern you at all?

The second item is, what about the macroeconomic impact of devoting so much of the funds of the country, the capital availability of the country, to this project, as opposed to other choices of projects which may have merit, also, from a social-energy-public-interest standpoint.

Mr. TUCHER. You have asked a number of questions. First of all, I share Mr. Graham's experience. I have never won an argument on CWIP but this is not CWIP in any way. We are not talking about construction work in progress. We are talking about protecting the lenders and investors against a very, very limited form of risk.

You may perceive it to be large or small, but it is a very limited thing. Not that the project they are lending to will not be completed, but that the other parts of the project will not get completed.

There are a number of incentives and assurances they will be completed, or the investors wouldn't be putting up money and guaranteeing the debt for those other segments.

We are talking about a very limited form of protection. We are not talking about loan guarantees to the banks.

As for your question about how these loans compete with other loans, certainly every dollar of loan, every dollar of credit extended, competes with every other dollar. Our funding studies indicate, and I don't have the numbers here, that the borrowing requirements are well within the total capital generation and lending activities of the country.

Mr. GRAHAM. The funding study we used to come up with the $12 to $18 billion figure, about $6 billion would come out of the U.S. capital market. That $6 billion, of course, would come out of the capital market over a staggered period of time from, say, the end of 1982 through the end of 1986, or early 1987; so you could rough-guess it is not going to be more than $1 billion or $1½ billion a year out of the U.S. capital market. Not an overwhelming amount.

The balance of the funds that we have projected—I am talking here about debt availability, not about what equity might go in directly by the partners or producers. The balance of the funds would come from the foreign capital markets in our judgment, so I think you can put the $6 billion over 5 years in practically any context you want, and it does not become an overwhelming exercise. It does not impinge on the capital markets to any great extent.

Mr. TUCHER. Last year, the total amount in global markets raised in syndicated loans was $100 billion.

Mr. BROWN. $100 billion, and you are talking about $18 billion, so you are talking about 18 percent.

Mr. TUCHER. Not in 1 year. We are not talking about raising 18 in 1 year. The $100 billion is over hundreds of transactions.

Mr. BROWN. You are talking about $18 billion, though, as an aggregate amount at the end of the project; is that correct?

Mr. GRAHAM. That is correct; yes.

Mr. BROWN. You didn't answer the first question I asked and that was, does it disturb you that some of the consumers may decide at the time it is critical for them to put funds into the project that they don't want to be gas consumers; they want to be oil consumers, or coal consumers, or something else, and they may not be, in fact, able to guarantee your loan because they may not be customers of gas.

Mr. TUCHER. If the gas marketability study bears out your assumption, that would disturb us greatly.

Mr. **Graham**. Well, whether it does or doesn't, the possibility exists that that could occur; that they will effectively vote with their feet, so to speak. Yes, that is a disturbing issue, and it is going to be one that will be addressed by the banks, and the banks will have to decide whether or not they are going to accept that sort of risk.

Mr. **Brown**. If I may assume we passed the waivers, how long do you think it would be before we knew what the answer was to the question of whether or not you will be able to work out a financial package that the banks can support?

Mr. **Tucher**. I would say the ball is really in the court of the sponsors and producers to come back to the banks.

Mr. **Graham**. We are only one party to the transaction. They could walk in tomorrow and say, "We are going to do this, this and this," and we agree they could do it and it could be done very rapidly.

Mr. **Brown**. At this point, that agreement has not been reached, and you are still how many billion dollars apart on it?

Mr. **Graham**. I don't know. We are not apart at all from them. They may be apart from the amount they have to finance and contribute to the project, and what we think is available from the capital markets on the conditions they propose to us. We are not apart from them.

Mr. **Sharp**. If we reject the waivers in Congress, are you basically telling us you will simply, at that point, have to tell the product sponsors to go to Indiana National Bank, or somewhere else; we cannot help. Is that it?

Mr. **Lewand**. I don't think so. I think if you reject the waiver package, everybody sits down and says: What do we do next, and I don't know what that might be. Certainly if there are enough people who perceive a need for the gas, something will be done in one way or the other. If there is no perception of need for the gas, this thing will die very rapidly.

Mr. **Tucher**. I think you have to differentiate among the waivers in this regard. There are certain waivers that I must tell you there is no way for any private financing that I can think of that could come forward. Other waivers, I suppose—there may be other ways of handling it. I don't know of those ways. I would not know of another way of financing the project.

Mr. **Sharp**. That is the participation, the prebilling and the FERC certainty.

Mr. **Tucher**. I would identify those as the most critical. Some of the others are absolutely essential. The status of the borrowers as a natural gas company would seem to be essential I am not a regulatory lawyer, but I don't know how you can construct a tariff based financing without getting tariff effective from the outset.

Mr. **Sharp**. I don't know if there is any difference of opinion on what we just heard.

Mr. **Jenks**. No.

Mr. **Sharp**. In your testimony, Mr. Jenks, when you talked about the precommencement billing waiver, were you expressing a serious doubt that that went far enough toward what was actually submitted by the President?

Mr. **Jenks**. I think we do have a doubt if that goes far enough. The question is whether there is enough debt support available in the sponsors and producers to get the thing financed.

Mr. **Tucher**. We have filed in the record a memorandum going back to July in which we indicated that we thought it would be advisable to have considerably more flexibility, specifically the possibility of exploring some form of actual guarantees or actual cash flows in the event of noncompletion, but that is not what is before the Congress at the moment. That is in the record.

Mr. **Sharp**. If there were some loan guarantees for a portion of it?

Mr. **Tucher**. What we said was if there could be some form of precompletion billing that would either assure lenders against noncompletion to some limited defined extent, or could, in fact, generate some cash flows prior to completion, some limited form of construction work in progress, that that might be an immeasurably helpful component of putting together the financial package, but that is not what is before you now.

Mr. **Jenks**. What you are getting at there is trying to reduce the overall funding requirements.

Mr. **Graham**. Our position, Mr. Sharp, is the same as I have heard expressed by the producers and the sponsors today; that we will take what is provided and work with it, to attempt to come up with the private sector financing plan. If it can't be done, quite possibly we will all be sitting around here sometime later trying to work out another arrangement. But you have, I think from each of the banks, their assurances they are going to apply their best endeavors as major lending institutions to help in financing this project.

Mr. **Sharp**. Do you have a comment?

Mr. **Lewand**. Yes, I have one. I have forgotten what it was now. Typical.

Mr. **Sharp**. We all suffer the problem.

Mr. **Lewand**. I don't know whether it is appropriate, but share with us a problem, if you will, that we see. When we attract the loans for this project, they will be for varying maturities. People will lend for 3 years, 5 years, for 8 years. Some of these loans are going to mature and will have to be repaid before the project is completed. Now, that is a problem that we have to surmount.

There is no revenue stream from this project until all segments fundamentally are in place and some revenue is developed either from the consumer or the flow of gas. Our problems could even come earlier.

What we are showing you in the precommencement type of waiver that you see is an effort to address one part of the problem. But truly, we haven't addressed an equally important part of the problem; that is, where do we develop a revenue stream before completion in order to satisfy the maturing debt of participants who don't want to reextend their debt.

I don't want to make you part of our problem, except to ask you to appreciate that the answers that you seek are very difficult to give you conclusively.

We have many, many elements that we have to put in place here before this thing works, and to say that our waiver, the precommencement billing thing is adequate is I think a premature statement given the lack of form of the total financing arrangement that we have.

Mr. **Sharp**. Let me ask you, would it make—we are going to be having to depart in a moment. I think we will conclude. Let me ask you quickly, I trust it would be helpful if the State of Alaska kicked in a couple billion, am I right?

Mr. **Lewand**. I would say yes.

Mr. **Sharp**. Would that give a significant lift to the ability to be able to borrow the additional capital?

Mr. **Jenks**. Well, it is $2 billion we don't have now.

Mr. **Sharp**. I understand. Anything helps. I understand.

Mr. **Lewand**. Pretty soon it adds up.

Mr. **Sharp**. Gentlemen, we appreciate your patience this afternoon, waiting just for your own turn to be on. We thank you for your testimony. Because we do have another vote on the House floor, I think we will conclude at this point. We thank you for your help and participation.

We will reconvene tomorrow morning at 9:30 in this room to hear from the State of Alaska, Canadian producers and others involved in the pipeline. We have several more days of hearings.

Thank you very much.

[Whereupon, at 6:29 p.m. the subcommittees adjourned, to reconvene at 9:30 a.m., Friday, October 23, 1981.]

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ALASKA NATURAL GAS TRANSPORTATION SYSTEM

FRIDAY, OCTOBER 23, 1981

House of Representatives, Subcommittee on Fossil and Synthetic Fuels, Committee on Energy and Commerce; and Subcommittee on Energy and the Environment, Committee on Interior and Insular Affairs,

Washington, D.C.

The subcommittees met, pursuant to notice, at 9:30 a.m., in room 2154, Rayburn House Office Building, Hon. Philip R. Sharp (chairman, Subcommittee on Fossil and Synthetic Fuels) presiding (Hon. Morris K. Udall, chairman, Subcommittee on Energy and the Environment).

Mr. **Sharp**. The subcommittees will come to order.We are continuing the joint hearing between the Energy and the Environment Subcommittee of the Interior Committee and the Fossil and Synthetic Fuels Subcommittee of the Energy and Commerce Committee this morning with respect to the waiver package.

We are delighted to have with us this morning the distinguished Governor of the State of Alaska, Governor Hammond. He is accompanied by Senator Frank Murkowski, one of our distinguished colleagues from the other body.

STATEMENT OF HON. FRANK MURKOWSKI, A U.S. SENATOR FROM THE STATE OF ALASKA

Senator **Murkowski**. Thank you, Mr. Chairman.

Mr. **Sharp**. Senator, I understand you have similar hearings on the Senate side. If you want to leave before we conclude with the Governor, I will understand.

Senator **Murkowski**. Thank you very much. I appreciate your understanding, Chairman Sharp.

I am delighted to be here this morning to introduce the Governor of my State to your hearing.

Governor Hammond, who is serving his second 4-year term as Governor of our State, was first elected in 1974, and subsequently reelected in 1978.

Governor Hammond served our country in World War II as a fighter pilot. He has a wide variety of vocations and avocations which represent the special lifestyle Alaska offers; including bush pilot, trapper guide, pilot for the Fish and Wildlife Service, commercial fisherman, and homesteader.

Before being elected Governor, Jay Hammond served three terms in the Alaska House of Representatives, serving as majority whip, majority leader, and president of the Alaska Senate, as well as chairman of the Senate Committee on Natural Resources. Governor Hammond also served as mayor of the Bristol Bay Borough.

Governor Hammond is respected by the people of Alaska for his determination to foster Alaska's economic development in accordance with sound environmental principles. He served as Governor during the construction of the Trans-Alaska Oil Pipeline and during the development of the vast Prudhoe Bay energy resources which, of course, is still going on today.

He has overseen the development of the State's coastal management program, and I might add at this time of budget cutting, Governor Hammond is the prime advocate of a proposed State constitutional amendment to limit the growth of government spending, within our State.

The Governor is very knowledgeable about the gas pipeline project which Congress is now considering. From the beginning the State of Alaska, under his leadership, has been an active partner with both the sponsors and the Federal Government in planning for and designing this project. I am sure that Governor Hammond's observations on this project will assist this committee as it considers the pending waiver package.

Mr. SHARP. Thank you very much.

Governor, we will be delighted to hear from you.

STATEMENT OF HON. JAY S. HAMMOND, GOVERNOR, STATE OF ALASKA, ACCOMPANIED BY ROBERT H. LOEFFLER, COUNSEL FOR GAS PIPELINE MATTERS

Governor HAMMOND. Thank you, Mr. Chairman.

I certainly appreciate the opportunity to appear before you and discuss a matter of unusual importance not only, of course, to Alaska and the Nation, but with international ramifications as well.

As Senator Murkowski mentioned, I have been the Governor of Alaska for almost 7 years.

Over that time I have seen the Trans-Alaska Oil Pipeline financed, constructed, and begin operation. Yet over that same period of time, as I have served and participated in gas pipeline matters, it has been a source of frustration to me and most Alaskans that we as a nation have been unable to move ahead with that gas pipeline. Before we turn to the specific waiver package, I wish to review the basic principles that have formed the State's position from the beginning of my administration.

The State of Alaska supports the construction of the Alaska natural gas pipeline, and supports the construction of the pipeline by the Northwest Partnership along the proposed route. We believe this is the best available pipeline route, and that the line should be built now. I have made it a priority of my administration to see that the pipeline is built and to assist the project as much as we realistically can.

In 1977, officials of my administration testified before Senate and House committees with respect to the President's decision and report to Congress on the Alaska Natural Gas Transport System.

Since then the State has continued to support the project. I personally have communicated my support to the President in 1979 and to the Secretary of Energy's special representative in 1980. My representatives have testified before the House Committee on Interior and Insular Affairs, expressing Alaska's support for the project.

In the winter and spring of 1980, several of my cabinet members and I, as well as other representatives of the State, participated in the negotiations that led to the cooperative agreement for the design and engineering of the Alaska gas pipeline and conditioning plant. The State participates on the design and engineering board as a nonvoting member. In article 13.7 of that agreement, the State "pledges its support for, and its cooperation and good faith in the exercise of its regulatory functions with respect to the project the ANGTS and related facilities." We continue to abide by that pledge.

Since the cooperative agreement was signed in June 1980, representatives of the State, including the Lieutenant Governor and the commissioner of natural resources, have participated in the meetings of the design and engineering board. This has served to keep us informed of progress on engineering matters and to help us become better acquainted with the major participants.

Alaska and the Federal Government share responsibility for permitting on the pipeline; the pipeline will cross nearly 200 miles of State land. This joint responsibility is expressly recognized and accepted by section 7(a)(5)(A) of the Alaska Natural Gas Transportation Act of 1976, which calls for a cooperative agreement between Alaska and the Federal Government to monitor the ANGTS.

The State has consolidated our permitting and monitoring functions under a State pipeline coordinator who reports directly to the commissioner of natural resources. The office of pipeline coordinator assumed the responsibility for surveillance of the gasline in January 1978, nearly 4 years ago. Our experience with TAPS led us to conclude that the project would be better served by this arrangement.

We believe ANGTS stands alone in terms of the major national energy projects currently proposed. The technology required for the completion of ANGTS is almost entirely conventional, even taking into account the special circumstances of Arctic construction. It is equally important that ANGTS involves no risk with respect to whether energy will result. We know that there are 26 trillion cubic feet of natural gas in the Prudhoe Bay reservoir, and that this gas will be available once the transportation system is completed. There is no uncertainty as to the availability of an enormous amount of energy from Alaska's North Slope. Thus, once ANGTS is completed, gas consumers and the Nation generally are assured of realizing deliverable energy for their investment.

We think the ANGTS is critical, not only because it will unlock the reserves at Prudhoe Bay, but because it will spur exploration and development of Alaska's storehouse of oil and natural gas. There are varied estimates of what additional quantities of natural gas and oil may be found in and around the North Slope of Alaska, but it is indisputable that it is one of the Nation's most promising, if not the most promising, energy provinces. Completion of a transportation system for natural gas would not only encourage, but in a basic sense permit the development of these resources. The State is and will remain committed to the protection of our other natural resources. Thus exploration for and production of hydrocarbon products must be harmonized with Alaska'a environmental concerns. We are certain these goals can be achieved.

We are equally certain that, absent a system to transport North Slope gas to lower 48 markets, the economics of exploration and development of additional supplies of both oil and gas would be severely handicapped.

I am aware that many parties have asked about State financial participation, particularly in light of our temporary financial gain due to the increase in the price of oil. Since the beginning of the project, the State has been receptive to examining some financial participation in ANGTS. Of course, there are many factors, both short and long term, including the need for approval by the legislature, that would precede any decision to invest.

To date, full information as to the status of the financing plan, the prospects for its successful conclusion and what, if any, appropriate role the State may play in the matter have not been available. Thus we have not been able to conduct an indepth analysis of State financial participation.

Now that the waiver package has been introduced, it appears that many of the details of the financing plan will be crystallized. I have been assured by the project sponsors that the information Alaska needs to determine the viability of State participation will soon be available to us. In light of that fact, I have appointed a special committee headed by my commissioner of natural resources, and consisting of the commissioner of revenue and the attorney general, together with representatives designated by the legislature, to investigate the merits of our financial participation in ANGTS.

In the past the Governor proposed, and the legislature enacted legislation establishing a gas pipeline revenue authority to aid in financing construction of the gasline. Alaska was mindful then, as now, of our regulatory responsibilities with regard to the prevention of waste in the production of oil and gas from the Prudhoe Bay reservoir and with respect to environmental, health, safety, and other functions.

We are hopeful that any potential conflict between financial participation and these fundamental State responsibilities can be avoided as we begin consideration of the merits of Sstate financial participation in ANGTS. I conclude by saying that we look forward to working with the project sponsors and receiving from them information that will permit us to make a prudent and responsible judgment on an investment in the gasline project.

Let me turn to the waiver package.

Alaska supports congressional approval of the waiver package. We believe that it should assist a private financing of the project. Whether it will, of course, depends on how the financial markets respond to the project's financing plan.

However, I am informed by my financial and legal advisers that adoption of the package should strengthen the final plan the project can offer to Wall Street.

I will not address the specifics of the waiver package except to say that they have been reviewed by my administration and are acceptable to the State.

The package incorporates a number of provisions the State has advocated in the past as helpful to making the project a reality.

Prior to answering any questions, I would like to introduce two people who are with me this morning.

Mr. Robert Loeffler, legal counsel for the State of Alaska here in Washington, and Mr. Deming Cowles, who runs the State of Alaska's office here in Washington, D.C.

With that, I would be pleased to respond to any questions.

Mr. SHARP. Governor, we appreciate your being here this morning and testifying. Let me follow up on your indication of, if I understand it, continuing interest in the possibility of financial participation by Alaska.

Do I understand correctly your administration and the State have not ruled out financial participation in this project?

Governor HAMMOND. By no means.

Mr. SHARP. You simply have not made any basic commitment as to whether you will or how much you would be willing to put in?

Governor HAMMOND. That is correct, Mr. Chairman. We, like other prospective financial participants, would like to see the scope of the plan, the appropriate role for the State to play and, as well, what the cost/benefits of that involvement might entail.

Mr. SHARP. Do I understand correctly if we pass the waiver package and if the project sponsors and the lead banks trying to put together the financial package, appear to be going forth, you will, in fact, participate in that process to find out whether or not your State will add money or capital to this project?

Governor HAMMOND. Yes, essentially, Mr. Chairman, I have viewed, you might say, basically any prospective developmental project on the basis of three prime criteria:

Is it environmentally sound?

Does it pay its own way?

Do the people want it?

Of course, overriding all three should be the national interest, I recognize. I think we can conclude from an environmental point of view, since virtually every environmental organization prefers this particular system and route, that that criteria is met clearly.

The cost/benefits from the financial point of view to the State will require an evaluation.

Again, in light of those conclusions by the rest of the financial community and as to whether the people want it or not, that will relate to the second portion of those three criteria.

Yes, we would be very much interested. We certainly want the door kept open for prospective State participation.

Mr. SHARP. Obviously as you are aware, the project sponsors, banks, and others would be more than delighted from what I understand from the testimony and otherwise with any financial participation, since they are trying to raise money any way they can get it for the project.

The State of Alaska is in a more favorable position than certainly many governments and some private investors in this country at this point.

You people have been able to take pride in that fact that you are being solicited for help on these kinds of things.

Governor **Hammond**. In that regard, if I might, Mr. Chairman, I would point out that some of the realities regarding the fortuitous circumstances of Alaska. At this stage in time they are somewhat ephemeral.

We are, of course, dependent in large measure on such things as oil pricing. We are looking at revenues of almost $1 billion less this year than we anticipated 1 year ago.

We are also extracting our resource potential at a far greater rate than any other State in the union.

Our oil is being pumped out at something like 240 times the average for wells in any other State. We float on a temporary bubble of substantial revenues that will deflate unless we find enormous reserves in the near future.

If we participate, we are going to have to look at using moneys that will otherwise be programed for such things as a $5 billion hydroelectric program that will be using State moneys rather than Federal moneys, which has been the norm in any other State to create that sort of generation capability.

So they have to compete, in other words, for those dollars. If the pipeline is a good deal, and the State so concludes and it can compete with those other uses, we will be more than happy to participate.

Mr. **Sharp**. You sound like we should have had you on the panel yesterday with the lead banks. You understand the tough tradeoffs that must be made.

Let me ask you this: Perhaps this is not a question that you would feel as comfortable with answering, but it certainly is my impression, and I think the impression of many on our subcommittee, that financing of this project is going to be difficult if we pass the waivers.

We—and optimism, pessimism depends on the witness. If we don't pass the waivers, the impression I get is there won't be financing of this particular project.

Do you have a good sense of—on that subject?

Governor **Hammond**. That is precisely my impression, Mr. Chairman.

I think there is little question but that if the waiver package is not passed, the financing for this particular project would be virtually impossible.

Mr. **Sharp**. If that is the case and we fail to pass the waivers or the financial community simply isn't able to come up with the capital for this particular project, do you see any other alternatives? What kind of future do you see with respect to the gas there and for the State of Alaska based on your discussion with various producers and others in the area on what would happen at that point?

Governor **Hammond**. I see nothing on the immediate horizon insofar as a viable alternative. There have been alternative proposals, as you know, I am sure.

A pipeline across Alaska bringing LNG into a west coast port. There are problems attending that project of perhaps greater respects. These pose at least the same problem with regard to financing.

As far as the domestic market for those products, I see nothing viable on the horizon.

Where there is something that might permit those products to go to Asian countries or somewhere else has been proposed in certain quarters as an alternative.

I think that unfortunate.

I think that potential is increased substantially if this pipeline is not constructed. Something has to be done or should be done with that product.

Mr. SHARP. I don't know if the State has looked closely at the option, but we will hear people in our hearing later in this series of hearings advocating the methanol alternative.

There are many options within that option. At least one argument has been made to us: If we do nothing and Congress or the financial community doesn't come up with it, the private sector will very quickly, or the State of Alaska or someone else, move to try to produce methanol and get that on the market.

Do you see that as a likely prospect?

Governor HAMMOND. I have heard that discussed. I am unaware of anything that indicates that that is an immediate potential resolution of this particular problem.

I am not prepared to go into that deeply, Mr. Chairman.

Mr. SHARP. Let me ask one further question and then I will recognize my colleague.

Could you—and to some degree you have already done this, so I will not ask you to repeat, but could you help give us a little better understanding of the sort of, as you see the cost/benefits to the State of Alaska of this project?

The kinds of real dollars that you may——

Governor HAMMOND. There are costs as well as benefits. I want to disabuse the committee of any presumption that Alaskans, for example, are salivating at the idea of a pipeline, a major project of that magnitude suddenly being imposed upon us.

While I am convinced, and I think most of us are convinced that the long-term national interests as well as national interests are best served by it, there are negative aspects to that.

For example, many recognize while there are something like 13,000 jobs to be made available, as with the oil pipeline, there was something like 20,000 in the case of the oil pipeline—the majority of those jobs didn't go to people already there.

Massive numbers of people flooded to the State with attendant impact on the infrastructure, the necessity of the State to come up with several million dollars of impact moneys that went to various communities.

Of course, when the pipeline was completed, many of them left the State with the attendant costs of sustaining some of that infrastructure on those who remained behind.

There are some who, particularly at this stage in time, when we are producing so rapidly our existing known reserves of oil at a rate of depletion of 1 percent every 60 days—this is accruing wealth to the State for a short term.

The idea of another enormous project that will have significant impact across the board is not necessarily something that all Alaskans are that eager to have happen right here and now.

I believe most of us are convinced this pipeline must and should go ahead if we are going to in the long term benefit the Nation and the best interests of the State; but the returns to the State would be in the form of, of course, additional property tax base, severance taxes on the gas itself, and whatever participation the State might engage in, the normal return accruing to whom—the State and other participants.

So there are very definitely financial benefits from the State's point of view, but they are probably far less comparatively speaking to the comparable financial benefits accruing to the Federal Government.

That is another major consideration, I think, that is in the best national interests.

Mr. SHARP. Do you anticipate that—I should ask the project sponsors of this if they can give us any indication of will this construction be more difficult or less difficult than portions of the oil pipeline?

Governor HAMMOND. Generally speaking, it should be far less difficult. It doesn't pose the same types of environmental problems.

Of course, there is infrastructure, transportation systems, so forth in place that this pipeline would parallel, plus just an awareness on the part of the public that this type of a project can be successfully completed.

The lowered apprehensions of many who, I think, felt the oil pipeline would cause horrendous environmental damage. The actual construction itself of a gas line does not entail some of the problems attending a heated oil pipeline, the permafrost problems, arctic construction are far greater in regard to oil pipeline construction than with regard to gas, I am told.

Mr. SHARP. Thank you, Governor.

I recognize my colleague, Mr. Coats, from Indiana.

Mr. COATS. Governor, I apologize for not being here to hear your opening statement. Welcome to the lower 48.

Glad to have you testifying before us.

In your statement you mention Alaska and the Federal Government share responsibility for permitting on the pipeline route through the Alaska portion of the route, and I am wondering if you are suggesting in your statement that the current law which provides for that sharing of permitting and the cooperative agreement which Alaska and the Federal Government has entered into is satisfactory or whether there are any changes that ought to be looked at?

Governor HAMMOND. To my knowledge, it is generally satisfactory. I am unaware. Perhaps I could defer to either of my colleagues here who are attorneys who might point out problems.

Mr. COATS. You don't feel our committee should address anything that would expedite the project?

Governor HAMMOND. No, I think everything in that regard is in good shape.

Mr. COATS. Second, please inform me whether or not this is correct: Does Alaska receive—will Alaska, if the pipeline is completed, the State of Alaska—receive royalty payments?

Governor HAMMOND. That is correct. The State of Alaska could receive 12.5 percent of the gas as royalty-shared.

Mr. COATS. Twelve and a half percent of what? The sales gross receipts?

Governor HAMMOND. Of the wellhead price.

Mr. COATS. Any rough idea how this will translate into dollars? What kind of dollar figure are we talking about?

Governor HAMMOND. We really don't know because the transportation costs are, of course, a prime factor in the final determinant as to what that wellhead price will be.

Mr. COATS. But it is gross?

Governor HAMMOND. I would defer to Mr. Loeffler, who has dealt with that issue.

Mr. LOEFFLER. As a technical matter, the royalty can be taken either in value or in kind. The State could actually ask for its royalty in gas and use part or all of that either in State or out of State.

Mr. COATS. You mean you could set it in your State if you could accept part of the royalty or all of the royalty in gas and turn around and sell that interstate yourself?

Mr. LOEFFLER. Interstate or more likely intrastate in Alaska.

However, we have done projections of the needs in Alaska and all projections indicate quite small needs, on the order of 1 percent of the total volume or 10 percent of the royalty.

The State has not done the projections because, although there is a ceiling price fix for the gas, you will not know until the financing is set whether you are going to achieve the ceiling price.

We have not sold any of our gas under any contract.

Mr. COATS. Just to give me a rough idea, if we are talking about 26 trillion cubic feet proven reserve and we use the factor of—can I use $3?

Mr. LOEFFLER. Well, in 1970 dollars, it is $1.45. It increases only with inflation.

It is the lowest price in the Gas Policy Act.

It is about $2 today.

Mr. COATS. $2 today? I was looking—what would you anticipate—can we say $2.50 when the pipeline is completed and you start to realize—of course, if it is deregulated, it will double.

I don't want to make that assumption.

Mr. LOEFFLER. There are some numbers, I recall, in the President's decision on the level of royalties, but, as I said, the State has not calculated.

It is all too uncertain right now to project.

Mr. COATS. Let me move on to a point that relates to that. There is some concern or thought on the financial community's part that the investing partners may not be able to come up with all the equity needed to enact a complete financial package.

If that is the case, would the State of Alaska be willing to participate in that or use or allocate some of its royalty payments to participate in that?

Governor **Hammond**. Again, based on the criteria I mentioned before that once we have seen the scoped out role for the State, cost/benefit returns, yes, we would be very much interested in participating if it is clearly demonstrated that it is a plus rather than a minus.

Obviously if we get the same equity participation and the same returns on that participation as other financing entities who have viewed the package and concluded it was financially to their benefit to do so, I have little doubt that the State would similarly conclude it to be in their benefit to do so.

I can't make a commitment in that regard. I have tried to set up mechanisms, including a rather unique means of inducing interest on the part of our citizens in actually quoting them a share of our royalty gas in such a way if we were to invest it in a pipeline, they would be individual recipients of a return on that investment, a dividend, call it what you will.

Mr. **Coats**. Has that message been well received?

Governor **Hammond**. It is lodged currently in the State legislature with varying degrees of enthusiasm. I think again if the citizens of the State could recognize a return of 17.5 percent on an investment of their share of the royalty gas rather than the Government simply being the recipient of those benefits, I think there would be far greater enthusiasm collectively that such participation occurred.

That is just evidence of my own interest in trying to set up mechanisms that would increase the level of public support for participation if and when we conclude that it is to our collective benefit.

Mr. **Coats**. What is the attitude of your administration regarding the development of estimated additional reserves?

Governor **Hammond**. That is another reason we think it is imperative that this pipeline be waiver package passed to facilitate completion of this transportation system. We think it will be a major stimulus to the exploration and development of additional reserves which Secretary Edwards, for example, indicated yesterday were in the neighborhood of a hundred trillion additional cubic feet of gas.

Of course, our oil potential is yet unknown. They are interrelated. We feel that absent this transportation system, or some viable means of moving that gas from the North Slope, that it will seriously diminish the enthusiasm for additional exploration and development of those prospective reserves.

Mr. **Coats**. If I could come back to the State's share of the wellhead price, I am trying to clarify in my mind whether we are talking about millions or billions, just where we are.

Even if we wanted to use a $2 figure, could you help me with my arithmetic on that? Where would we end up on just the 26 trillion cubic feet, if all that potential were utilized?

Mr. **Loeffler**. I don't have a calculator. You have to distinguish what is proven and what is deliverable.

Mr. **Coats**. Just use the 26.

Mr. **Loeffler**. Twenty-two is what I think they count on getting out of the reservoir.

Mr. **Coats**. Twenty-six is there, but they will only get 22 out.

Mr. **Loeffler**. You never get it all out.

Then you can use the $2 figure.

Take 12.5 percent of that.

Mr. COATS. You want me to do that? I was sort of hoping you would.

Mr. LOEFFLER. If you want, we will submit the number. I don't have a calculator with me either.

Mr. COATS. All those zeroes. Trillion.

Mr. LOEFFLER. Let me see——

Mr. COATS. You don't have those figures? The State has not made any estimation——

Mr. LOEFFLER. That is right.

Mr. COATS. Somebody just said 5 billion.

Mr. LOEFFLER. Not having made the count, I can't confirm it or not. I specifically asked whether they did that in revenue. I was told they have not made those projection for the very point the Governor suggested.

It depends upon a lot of factors. When we did it for oil, we found the price of oil declining this year. We are $1 billion less than they anticipated at the start of the year.

Mr. COATS. Maybe as a ball-park, unproven extraction from the gas deposit at today's price, we might be looking at $5 billion?

Mr. LOEFFLER. I will accept it for purposes of discussion.

Mr. COATS. For purposes of discussion. So if we—if Alaska then goes ahead and those estimated reserves are moved in the category of proven reserves, we could easily multiply that $5 billion in today's dollars by 6, 7, 8 times?

And if the price at the wellhead increased by $1, $2, then we could multiply it again. So we are looking at a fair share of dollars for the State of Alaska which might be a good inducement for the State to participate in the financing.

Governor HAMMOND. Again, speculatively, it appears as though it would be an excellent investment for the State, assuming many of the assumptions you are making.

I would have no—I want the door held open so that if we can demonstrate that once we see a clear picture we will have the necessary public support, necessary legislative approval of such participation.

Again there are too many imponderables for me to say yes; I am willing to commit. Besides, I am more concerned about the long-term benefits and frankly the national interests, believe it or not, than I am certainly about the political package that might attend an action of that nature.

Infinity, as you know, for many of us in politics, is 2, 4, 6 years. For me it is only 13 months.

Mr. COATS. We only have about 12 to go.

Governor HAMMOND. You are right. I believe it would be a good financial investment for the State of Alaska with what I know today.

But, until I can prove that, obviously I cannot induce the sort of public and legislative support.

Mr. COATS. Thank you.

Mr. SHARP. I am sure, Governor, you undestand from the standpoint of the banks and the project managers, the more positive an indication they have from you, the more likely—the ease with which they are able to——

Governor **Hammond**. That works both ways, Mr. Chairman.

Mr. **Sharp**. I understand.

The gentleman from Oklahoma?

Mr. **Synar**. No questions, Mr. Chairman.

Mr. **Sharp**. Governor, we appreciate your testimony this morning. If we have further questions, we will submit them to your Alaskan office. Thank you.

Governor **Hammond**. Thank you.

Mr. **Sharp**. Our next panel is the Canadian pipeline participants whom I understand will be testifying in the Senate as soon as they finish here.

We are delighted to have you with us. We suspect the first panel in the Senate will be taking some time.

STATEMENT OF ROBERT PIERCE, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, FOOTHILLS PIPE LINES (YUKON), LTD

Mr. **Pierce**. Thank you, Mr. Chairman.

Mr. **Sharp**. We will be delighted to hear from you.

Mr. **Pierce**. Thank you, Mr. Chairman.We welcome the opportunity to appear before your committee.

My name is Robert Pierce. I am president and chief executive officer and a member of the board of directors of Foothills Pipe Lines (Yukon), the Canadian company responsible for the Canadian segment of the Alaskan natural gas transportation system.

Appearing with me are Mr. Robert Blair, chairman of Foothills, as well as president and chief executive officer of NOVA, an Alberta corporation, and Mr. Ed Phillips, vice chairman of Foothills and chairman and chief executive officer of Westcoast Transmission Co., Ltd.

NOVA and Westcoast share in the ownership of Foothills equally.

Also with us this morning is our distinguished Washington attorney, Mr. George McHenry, Jr.

We have as well our three executive vice presidents of the Foothills company, Mr. Dyell, executive vice president of projects; Mr. Ed Lemieux, executive vice president of finance, and Mr. Murray Stewart, executive vice president, corporate; as well as Mr. Bruce Simpson is with us.

We are here to support the expeditious passage of a joint resolution approving the waiver package which was submitted to Congress by President Reagan on October 15.

Like our American cosponsors, we believe favorable action on the waiver package has become essential for the project to achieve financing and completion by 1986.

We would also remind you of the commitment made to Canada in July 1980 at the time of the Canadian approval of new gas exports and the commencement of construction of phase I of the project, also referred to as the prebuild phase.

You will recall in order to allay Canadian fears that the entire project would not be completed if the prebuild phase went forward, Congress passed a bipartisan and practically unanimous joint resolution declaring that the entire system remained an essential part of securing this Nation's energy future and that it would give the highest level of congressional support for its expeditious construction and completion.

In addition, of course, President Carter wrote to Prime Minister Trudeáu on July 18, 1980, reassuring that the United States stood ready to take additional steps to insure completion of the entire system.

One of the specific steps proposed in President Carter's letter was the initiation of proceedings before Congress to remove any impediment to the ability of the Canadian sponsors to collect their full cost of service from U.S. shippers as soon as the Canadian segment is completed and capable of rendering service for the benefit of American consumers.

In making this commitment, President Carter recognized that the Canadian sponsors have a reasonable concern—that they be assured recovery of their investment in a timely manner if, once project construction is commenced, they proceed in good faith with completion of the Canadian portions of the project and the Alaskan segment is delayed.

The waiver package submitted by President Reagan on October 15 honors and supports that previous White House commitment. Specifically, it proposes that the Federal Energy Regulatory Commission be authorized to approve shipper tracking of Foothills full cost of service upon completion and testing of the pipeline in Canada, provided that such date is not before a date certain, as determined by the Commission.

Although the arrangements for tracking upon completion and its necessity have been described thoroughly in our testimony before the United States and Canadian authorities for many years, I am advised that we should review it again today for completion of your record, and describe why it is essential to the private financing of the Canadian segment.

Before addressing this matter in detail, however, it may be helpful to briefly describe the role of the Canadian project sponsors, review some of the significant contributions which we have already made, and summarize the regulatory progress which has occurred in Canada since the selection of the project. Viewed in this context, we believe the tariff arrangements which the Canadian sponsors require remain fair, reasonable, and consistent with the long-term interests of all concerned.

Because of our experience as builders and operators of gas pipelines in western Canada, it was only logical that NOVA and Westcoast should involve themselves in this transportation system.

Accordingly, through Foothills, as our project company, we joined with a subsidiary of Northeast Energy Co. in 1976 to cosponsor the pipeline project which was ultimately selected by our two countries as the Alaska Natural Gas Transportation System.

It was our opinion then—and it is our opinion now—that a conventional overland pipeline which follows the TAPS oil pipeline corridor and then the Alaska highway, and which utilizes the resources and expertise of existing Canadian companies, is the most economic and environmentally sound means of transporting Alaskan gas to markets in the lower 48.

In 1977, following many years of regulatory litigation and exhaustive review in both Canada and the United States, our two countries consummated an agreement on principles relating to the construction and operation of the project.

That agreement, among other things, committed both to the expeditious completion of all remaining regulatory proceedings.

As you are aware, the targeted completion date of January 1, 1983, has now fallen behind. Primarily as a result of delays associated with the Alaskan segment, the completion date for the project has now slipped approximately 4 years to November of 1986. This delay, in turn, has increased the total cost of the project greatly and has naturally imposed an additional financial load upon the sponsors.

Notwithstanding these delays and their resultant cost impacts, the Canadian sponsors have continued their work on the project, and they have continued to invest their money and resources toward its successful completion.

Indeed, through Foothills, the Canadian sponsors have already invested a total of approximately $560 million in the project as of the end of August.

Based upon the assurances given by the President and the Congress in the summer of 1980, we have devoted a substantial portion of this investment to phase 1, comprising approximately 25 percent of the length of the Canadian segment of the project, in order to transport new gas exports of more than 1 billion cubic feet per day to the United States.

For the western delivery leg, the prebuild facilities have already been completed and are presently flowing gas. The eastern delivery leg is presently under construction and will be completed and ready for service by the fall of next year.

Concurrent with phase 1, Foothills has made substantial progress on phase 2, which comprises the remainder of the system.

Detailed route location work for the entire pipeline has been completed.

Pipe burst tests have been successfully concluded.

Geotechnical, frost heave, and environmental studies have been undertaken and design work is at an advanced stage.

In performing this work, Foothills has used the services of more than 700 people, 630 of which are employed directly, and the remainder of which are consultants.

Substantial progress has also been made during the past 4 years by the Canadian Government.

The National Energy Board has also worked assiduously to expedite the Canadian regulatory process. It has issued necessary approvals for phase 1 of the project, established an incentive rate of return mechanism pursuant to the agreement on principles and issued orders on both the mainline and prebuild tariffs of Foothills.

In short, Mr. Chairman, the Canadian sponsors and the Canadian Government have worked diligently to fulfill every commitment made thus far in connection with the ANGTS. It is against this background that we ask you to consider the waiver package which has been submitted by the President.

Let me now turn from the general to the specific and concentrate on the billing commencement issue, which is the focal point of our concern. In this regard, it is important to focus upon the physical and financial requirements of the task which lies ahead for the Canadian sponsors. Given the size of our investment responsibility, Foothills must be paid its full cost of service upon completion of the Canadian segment.

In sheer physical terms, the 2,000-mile Canadian segment will be the longest of the four pipeline segments which comprise the ANGTS. It will be approximately twice as long as either the eastern or western delivery leg, and almost three times the length of the Alaskan segment.

The financial requirements for the Canadian segment are also considerable. As the owners of Foothills, NOVA and Westcoast start with the responsibility to invest about $1.5 billion each in order to provide the equity component of the Canadian capital costs, which will total approximately $17.6 billion on an escalated basis in Canadian dollars.

For comparison, each of the 13 pipeline and producer sponsors of the Alaskan segment will be required to invest an average of approximately $460 million, in order to generate the equity component of the total Alaskan pipeline and plant costs of $24 billion.

As well as furnishing equity funds, the Canadian sponsors must demonstrate corresponding credit strength to raise a substantial amount of debt.

To justify the investments required for phase II, the Canadian sponsors, as well as the lenders of their debt funds, must be sure that Foothills will be in a positive cash flow situation as soon as the project which is the subject of their investment, that is, the Canadian segment, is successfully completed.

A positive cash flow at this point in time is absolutely essential in order that the equity sponsors of Foothills can compensate their shareholders, retire their debts, and finance their ongoing business operations.

In addition, Foothills must be able to maintain the line upon completion, service its own debts, and proceed with work on the Dempster Lateral, which will connect the ANGTS with the Mackenzie Delta region of the Canadian Arctic.

In this regard, you may recall that the National Energy Board required Foothills to proceed with an application for the Dempster Lateral as a condition to receiving a certificate for the mainline.

In considering these future needs, the Canadian sponsors must face the fact that they will receive absolutely no cash flow benefits during the construction of the Canadian segment. Unlike the situation in the United States, in general, law on taxation in Canada will not permit NOVA and Westcoast to claim tax credits for their investments in the project.

Moreover, Canadian law does not permit Canadian corporations to file their income tax returns on a consolidated basis, and thereby reduce their taxes through the deduction of expenses attributable to subsidiaries or affiliates. As a result, NOVA and Westcoast will receive no tax advantages from the interest paid by Foothills on its debt.

It is imperative, therefore that the Canadian sponsors be placed in a positive cash flow situation as soon as they have completed their segment of the project and are ready, willing, and able to transport gas to U.S. consumers.

Neither we nor our lenders can assume any construction, political or regulatory risk present, or which might occur in the future, for the American segments, since those are matters completely beyond our experience, control or ability to influence. In this connection, recoupment of investments made thus far by the Canadian sponsors has already been delayed approximately 4 years. Under these circumstances, our companies cannot continue to make additional investments in the project without firm assurances that they will begin to recover their investments, plus a reasonable return, at a certain point in time.

For these reasons, our position on the billing commencement issue has been candid and unequivocal since the inception of the project. In our testimony before the National Energy Board, the Federal Energy Regulatory Commission and various parliamentary and congressional committees, we have stated, and we can reaffirm today that the Canadian sponsors cannot participate in the project unless Foothills is permitted to collect its full cost of service, including a return of and on equity, as soon as all Canadian segments are completed and leave to open has been granted by the National Energy Board.

This assurance is absolutely essential in order for NOVA and Westcoast to invest in the equity of the project. Moreover, it is a fundamental link in the credit strength which must be demonstrated to lenders before they will advance the required debt.

In making this point, we do not expect that the Alaskan facilities will be delayed, thereby making it necessary for Foothills to commence billing prior to the flow of gas.

We believe, especially in light of our experience on phase I, that careful planning of construction will lead to coordinated completion of all segments. For purposes of financing, however, the equity sponsors and lenders must be protected against the unexpected event of a delay in the completion of the Alaskan pipeline or the conditioning plant.

In view of such considerations, the National Energy Board has approved the billing commencement provisions and other aspects of Foothills' proposed tariff. Standing alone, however, this does not guarantee that Foothills will, in fact, be paid upon completion of the Canadian segment. U.S. shippers must contractually agree to pay all charges approved by the NEB under Foothills' tariff. They will not enter into such agreements, however, unless they are permitted by the FERC to automatically track such charges through to their customers.

It is for this reason that Condition IV-3 of President Carter's 1977 decision is currently an impediment to financing. As interpreted by the FERC, that condition would prohibit the tracking of any payments made to Foothills until all pipeline segments of the entire project are completed and commissioned for service.

If the proposed waiver is approved, the Commission would have authority to permit automatic tracking of Foothills' charges upon completion and testing of the segment, provided that such date is not before a targeted completion date for the entire project.

Assuming that the targeted completion date established by the FERC does not significantly depart from our present construction schedule, we believe that the waiver would pave the way for privately financing the Canadian segment.

That completes my testimony, Mr. Chairman.

We had undertaken to file orally an answer to one of the questions this morning. I am prepared to do that orally or leave the answer with you in written form, whichever suits your convenience.

[Testimony resumes on p. 647.]

[Attachments to Mr. Pierce's prepared statement follow:]

ATTACHMENT A

RESPONSES OF CANADIAN SPONSORS TO QUESTIONS PRESENTED BY SUBCOMMITTEES

Question No. 1: What are the likely sources of financing to which the Canadian sponsors will turn to build the Canadian sections of the project?

Response: Approximately 25 percent of the Canadian capital costs will be generated in the form of equity contributions from the Canadian sponsors. It is anticipated that the remaining 75 percent will be initially arranged through loan commitments from a syndication of Canadian and foreign banks. Subsequently, the bank commitments should be reduced by the participation of institutional investors.

Question No. 2: What is the possibility of competition for funds between the Canadian and U.S. sponsors?

Response: The Canadian sponsors believe that this possibility is unlikely. There is sufficient capacity in the world financial markets to provide the total funds which are required to finance the entire ANGTS.

Question No. 3: What is the justification for full-cost-of-service tariff recovery for the Canadian segment, rather than the minimum bill?

Response: This question has been answered in the prepared statement of Mr. Robert L. Pierce, to which these responses are appended.

Question No. 4: Are there any precedents in Canadian regulatory history for pre-billing and full-cost recovery prior to system completion?

Response: This matter is being investigated and will be addressed by Mr. Pierce during his oral presentation.

Question No. 5: How would the Canadian sponsors compare the regulatory and cost treatment accorded this project to others in Canada?

Response: The Canadian segment of the ANGTS will be regulated in a similar manner as other interprovincial Canadian pipelines to the extent that its rates, tolls, and charges must be "just and reasonable", i.e., based upon prudently incurred costs plus a reasonable return. In other respects, however, the Canadian segment will be subject to far greater regulatory scrutiny. First, the pipeline will be constructed under the supervision of the Northern Pipeline Agency. Secondly, in addition to being regulated under the provisions of the Northern Pipeline Act and the National Energy Board Act, which is similar in many respects to the U.S. Natural Gas Act, the Canadian segment is subject to the terms and conditions of the Agreement on Principles, and the provisions of the transit hydrocarbon pipeline treaty which has been consummated between our two countries, and the overview of Parliamentary and Congressional Committees.

Question No. 6: What is the time for construction of the Canadian segments of the project as compared with the U.S. segments?

Response: The Canadian and U.S. sponsors are presently intending to complete the entire project by November 1986.

Question No. 7: What are the contingency plans for the Dempster lateral pipeline to the Mackenzie Delta, with and without the Alaskan project completion?

Response: Pursuant to an agreement with the Canadian Federal government, Foothills has filed an application with the National Energy Board relating to the construction and operation of the Dempster lateral. The economic feasibility and desireability of the lateral depends upon the completion of the ANGTS mainline. Accordingly, the Dempster lateral would not be constructed in the unfortunate event that the Alaskan project is not completed.

Question No. 8: To what extent will users of Mackenzie Delta gas share in the costs of the Foothills pipeline with and without completion of the Alaskan gas pipeline segments?

Response: As noted above, Mackenzie Delta gas will not be transported through the Dempster lateral into the Foothills pipeline if the Alaskan segment is not completed. On the other hand, if the entire ANGTS is completed and the Dempster lateral is constructed, users of Mackenzie Delta gas will pay their proportionate share of Foothills' cost of service according to the provisions of the Agreement on Principles which was signed by the United States and Canada.

Question No. 9: What is the Canadian sponsors' assessment of the risks that the Foothills pipeline would be delayed or would fail to be completed, and the possible sources of such risks?

Response: The Canadian sponsors believe that, after commencement of construction on Phase II, it is unlikely that there will be any significant delay or noncompletion of the Canadian segment. It is impossible, however, to assess the risks associated with highly unlikely events, such as a major war or a world economic collapse.

Question No. 10: Do the Canadian sponsors believe that if the project cannot be financed despite passage of the waivers, the U.S. is obligated to take additional steps to make it possible?

Response: The willingness of the Canadian sponsors to continue their investments in the Canadian segment, and to "prebuild" approximately 25 percent of the length of the segment to transport new gas exports, has been based upon the assurances which have been given by the United States to Canada relating to the completion of the entire ANGTS. We interpret those assurances as committing the United States to do whatever is necessary, within reason and consistent with its national interests, to assist the private financing and successful completion of the project.

At the present time, the Canadian sponsors believe that approval of the waiver package will provide the critical link to privately financing and completing the system. However, in the event that financing could not be arranged, even with the waivers, we would expect that the United States and Canada would continue to work together in the exploration of other means of completing the project.

Question No. 11: What are the chances that the Canadian segments cannot be built or financed if the waiver as proposed is passed?

Response: The Canadian sponsors believe that the approval of the waiver package will pave the way for the private financing and successful completion of the Canadian segment. Without this belief, we obviously would not be continuing to invest substantial funds in the project.

ATTACHMENT B

EMBARGOED UNTIL AFTER THE BRIEFING JULY 18, 1980

Office of the White House Press Secretary

THE WHITE HOUSE

TEXT OF A LETTER FROM THE
PRESIDENT TO THE
PRIME MINISTER OF CANADA

July 18, 1980

Dear Mr. Prime Minister:

Since you last wrote to me in March, the United States Government has taken a number of major steps to ensure that the Alaska Natural Gas Transportation System is completed expeditiously.

Most significantly, the Department of Energy has acted to expedite the Alaskan project. The North Slope Producers and Alaskan segment Sponsors have signed a joint statement of intention on financing and a cooperative agreement to manage and fund continued design and engineering of the pipeline and conditioning plant. The Federal Energy Regulatory Commission recently has certified the Eastern and Western legs of the System.

The United States also stands ready to take appropriate additional steps necessary for completion of the ANGTS. For example, I recognize the reasonable concern of Canadian project sponsors that they be assured recovery of their investment in a timely manner if, once project construction is commenced, they proceed in good faith with completion of the Canadian portions of the project and the Alaskan segment is delayed. In this respect, they have asked that they be given confidence that they will be able to recover their cost from U.S. shippers once Canadian regulatory certification that the entire pipeline in Canada is prepared to commence service is secured. I accept the view of your government that such assurances are materially important to insure the financing of the Canadian portion of the system.

Existing U.S. law and regulatory practices may cast doubt on this matter. For this reason, and because I remain steadfastly of the view that the expeditious construction of the project remains in the mutual interests of both our countries, I would be prepared at the appropriate time to initiate action before the U.S. Congress to remove any impediment as may exist under present law to providing that desired confidence for the Canadian portion of the line.

Our government also appreciates the timely way in which you and Canada have taken steps to advance your side of this vital energy project. In view of this progress, I can assure you that the U.S. government not only remains committed to the project; I am able to state with confidence that the U.S. government now is satisfied that the entire Alaska Natural Gas Transportation System will be completed. The United States' energy requirements and the current unacceptable level of dependence on oil imports require that the project be completed without delay. Accordingly, I will take appropriate action directed at meeting the objective of completing the project by the end of 1985. I trust these recent actions on our part provide your government with the assurances you need from us to enable you to complete the procedures in Canada that are required before commencement of construction on the prebuild sections of the pipeline.

In this time of growing uncertainty over energy supplies, the U.S. must tap its substantial Alaska gas reserves as soon as possible. The 26 trillion cubic feet of natural gas in Prudhoe Bay represent more than ten percent of the United States total proven reserves of natural gas. Our governments agreed in 1977 that the Alaska Natural Gas Transportation System was the most environmentally sound and mutually beneficial means for moving this resource to market. Access to gas from the Arctic regions of both countries is even more critical today as a means of reducing our dependence on imported petroleum.

Successful completion of this project will underscore once again the special character of cooperation on a broad range of issues that highlights the U.S./Canadian relationship.

I look forward to continuing to work with you to make this vital energy system a reality.

Sincerely,

JIMMY CARTER

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Mr. Sharp. I think that relates to condition 4, which relates to prebilling.

If you want to summarize, or you can certainly submit your written information for the record. We would be delighted to hear from you on that.

As you are aware, the prebilling question has been one of the most significant ones, and the committee members have been struggling with it.

Mr. Pierce. Perhaps I can deal with it.

The question was, "Are there any precedents in Canadian regulatory history for prebilling and full cost recovery prior to system completion?"

The response is that, while there have been certain situations in which Canadian pipeline companies were permitted to commence billing upon the completion of facilities prior to the flow of gas, it is difficult to find useful precedents dealing with the specific tariff arrangements which Foothills requires for financing purposes.

The absence of such precedents, however, should not be regarded as significant.

Since the inception of the project, the sponsors, the Canadian Government, and the U.S. Government have consistently recognized the ANGTS is unprecedented in its size, complexity and costs and that unique tariff arrangements may be required for private financing.

For example, the Federal Energy Regulatory Commission has already decided that the Alaskan sponsors should be permitted to begin collecting a minimum bill as soon as all pipeline segments are completed and commissioned for service even though gas has not begun to flow.

That is our response, Mr. Chairman.

Mr. Sharp. If I might follow up briefly on that, one question raised with us in the prebuild section that you have been involved in, and you obviously don't have a provision for, if I understand it correctly, is precommencement billing.

The waiver would seek that with respect to the rest of the line. How would you distinguish between those two segments and what is the reason why now we hear of precommencement billing if evidently it wasn't critical to the project, the segment you were in the process of building?

Mr. Pierce. It is a terrible thing to say, Mr. Chairman, but what is $800 million? That is one part of the answer.

The second part of the answer is that phase I—as we tend to call it—is a 1-year project to connect gas on the western leg and a 2-year project to connect gas on the eastern leg. We are handling it. We are building gas pipeline all the time, in addition to that.

That is our business. We don't find much difficulty with it.

Now, we are talking about something that as you can see in Canadian dollars today works out to about $17.6 billion. It covers a period of time from 1981 to 1986.

Anything that we can build within a short period of time without having to wait for governments to do things for us—and there are proper places for governments—we don't have much problem with, but here we have 4 years and the majority of that cost is made up on the basis of escalation and interest rates that we have no control over.

So, after 4 years of dealing with all of that, and all of that outgo of money, we say really when we have done what we have said we would do—and we are not entitled to get paid until we have done what we said we would do—then we should get paid. It is the sheer size and the time period.

Mr. **SHARP**. Let me ask you further if you find satisfactory the waiver with respect to prebilling in the sense that a date will be set which will to some degree be negotiated among the parties, but obviously the Federal Energy Regulatory Commission, in this country, will set that date as I understand it.

Does that procedure and process meet what you and your lenders consider has been the problem with the precommencement billing, or lack of it?

Mr. **PIERCE**. I think, Mr. Chairman, the proof will be in the eating.

If the date is picked too far in advance, it is of no use and will be unacceptable to us. In effect, our response has been that the date essentially follows the construction program that we envisage; then we can see that it will be satisfactory.

It is something new that has been proposed.

But if it is a date that is reasonable in the circumstances and we can schedule our construction and capital investments in relation to it, fine.

But if it is something that is going to run us into another year's delay or 2 years, it may say that the project is completely out of hand.

So the proof will be in the eating. We have no reason not to believe that the date will be chosen in a reasonable fashion.

Mr. **SHARP**. But you clearly think that that process envisioned by the waiver is a definite step forward in improvement from where you all stand today in terms of raising capital?

Mr. **PIERCE**. Absolutely, Mr. Chairman.

Mr. **SHARP**. I will recognize my colleague from Oklahoma, Mr. Synar.

Mr. **SYNAR**. Mr. Chairman, I have no questions. I think that the testimony and the written responses that you delivered pretty well answer all the questions that I have. I appreciate you all coming this morning.

Mr. **PIERCE**. Thank you, Mr. Synar.

Mr. **SHARP**. Gentlemen, I appreciate your testimony this morning. It is possible that some of our members will ask us to submit some written questions to you, though you have been very responsive; in fact, more so than almost anyone else testifying in terms of explicitly answering the questions that we put forth in our initial letters of inquiry. We appreciate that.

I am not certain whether there will be any further questions. I do appreciate your being here.

I understand you will be testifying momentarily in the Senate. We thank you for your cooperation.

Mr. **PIERCE**. Thank you, Mr. Chairman.

STATEMENTS OF HOWARD L. HAWKS, PRESIDENT, NORTHERN PLAINS NATURAL GAS CO., AND DANIEL E. GIBSON, ASSISTANT GENERAL COUNSEL, PACIFIC GAS & ELECTRIC CO.

Mr. **Hawks**. Thank you, Mr. Chairman.

Mr. **Sharp**. Gentlemen, we have listed Mr. Hawks first. If you have any desire to go differently, we would be happy to hear from you at this point.

We will make part of the record any testimony you have and are delighted to hear orally from you.

Mr. **Hawks**. I am accompanied by Daniel O'Brien, the general counsel of Northern Plains Natural Gas Co. and also, therefore, of Northern Border Pipeline Co.

It is an honor and privilege, I think, for us to be asked to speak on behalf of part of the Alaskan natural gas transportation system which is currently under construction, and to present to you some good tracks of the work that many of us have spoken about this week which are underway or completed.

As you recommended, I submitted my complete testimony. In that, we have answered the questions which you provided.

My comments here will be a brief summary of the role our company has had in ANGTS, but before I address the importances of the northern border project, and its relationship within ANGTS, I would like to go on record that the approval of the waiver package that has been requested by President Reagan is a critical step down the pathway toward completion of the entire project by the private sector.

The completion of this project is important not only to our country's economic well-being, but also vital to our national security, as you have suggested.

Let me move into a brief outline of Northern Border and what it is and what it has done to date.

Northern Border Pipeline Co. is a partnership consisting of five partners, four of whom are major U.S. natural gas and energy companies serving major parts of the United States.

The other company is a major Canadian natural gas company. The partners are Northern Plains Natural Gas Co., a subsidiary of Inter-North; Northwest Border Pipeline Co., a subsidiary of Northwest Energy; Pan Border Gas Co., a subsidiary of Panhandle Eastern; United Mid-Continent Pipeline Co., a subsidiary of United; and Trans-Canada Border Pipeline, Ltd., a subsidiary of Trans-Canada.

Each of those companies, each of those parent companies has also been requested to present testimony in its own behalf.

I, therefore, am here speaking on behalf of the Northern Border Pipeline Co. only.

Northern Border was the line picked to build the eastern leg, to transport Alaskan gas, under the original scenario.

It extends from Port of Morgan, Mont., at the Canadian border—under a concept called prebuild which I will describe later—to Ventura, Iowa.

Under the total ANGTS system, it will be extended to Dwight, Ill., which is just outside Chicago.

We are now engaged in the prebuild which is designed to transport surplus Canadian gas in advance of the Alaskan system to major market areas in the United States.

All States but North Dakota have currently had construction of the main line process completed.

We are now underway in construction in North Dakota, and approximately 575 miles of the 823-mile main line involved in the prebuild has been completed.

The prebuild was undertaken in response to U.S. and Canadian government recognition that both nations and its peoples would benefit from the new export of surplus Canadian gas.

The transportation of that gas through prebuild would provide significant assistance to the overall completion of the Alaskan natural gas transportation system, primarily by helping finance the remainder of the project, by reducing the ongoing inflationary effect on costs from building the project earlier as compared to later.

It also provides a mechanism by which to ease the total demand on labor and capital during the remaining construction of ANGTS.

We expect to complete this project in the fall of 1982 and at that time we will begin to transport 975,000 Mcf per day to U.S. markets.

This is equivalent to 166,000 barrels of oil per day.

When completed, we will have the capability to transport 2.2 billion cubic feet of gas per day.

This, Mr. Chairman, would include Alaskan gas.

This is equivalent to nearly 400,000 barrels of oil per day.

The additional expansion of this system, and the extension of its line to Dwight, Ill., will cost approximately another $1 billion.

Let me give you a quick overview of some of the key factors related to the prebuild so that you can put into perspective some of the impacts it has had on the United States today.

It is the largest single order for pipeline steel in U.S. history.

One steel official told me that our order of pipe for his company alone provided employment for 1,400 people. There were 11,000 rail carloads of pipe required to deliver the pipe from the factories to the site.

We are currently employing approximately 4,000 people in the construction activity.

Northern Border Pipeline is the largest privately financed project in the free world to date and hopefully to be shortly succeeded by the remainder of ANGTS.

It has provided significant minority and female business participation under the guidance of our own efforts and the office of the Federal Inspector.

I am advised that it also required 1,990 Federal, State and local permits and authorizations.

Overall, it has provided significant economic benefit to the upper Midwest during construction and to other segments of our country due to the manufacturing process and transportation industries.

Why should the waiver package be provided and why should ANGTS be completed?

The waiver package is obviously needed to permit sponsors to provide and obtain private financing in accordance with the U.S. Government policy.

It is also important to our credibility, our being the United States as an energy partner with Canada, and its effect on the future export policy of Canada.

It will provide access to 26 trillion cubic feet of proven reserves.

In addition, over 100 trillion cubic feet of potential reserves are there and it will stimulate the development of those North Slope reserves which are much needed by the United States.

It will provide a transportation system for vast frontier reserves of Canadian gas as has been described by our friends from Canada, who just preceded us, and it will possibly enable Canada to include these reserves in its export calculations which it now does not do.

It will reduce our dependency on foreign oil materially and cut dollar outflows to the OPEC nations.

It will enhance economies of our great Nation and that of our No. 1 trading partner, Canada.

There is no question that the system is needed. If delayed or abandoned, it will only cost more when the crisis comes.

As to Northern Border, more specifically, the failure to proceed with ANGTS would eliminate the major source of gas supply for the Northern Border Pipeline Co. and project.

It may conceivably jeopardize the extension of our Pan-Alberta license. I have spoken to that more thoroughly in my written testimony.

We will not be able to operate the system at maximum volume and cost effectiveness without the Alaskan volumes.

Now, if you would permit me, I would like to speak as a private citizen.

It is inconceivable to me that we here in the United States—and this includes business and industry leaders, government, major interest groups, and consumers themselves—would contemplate the failure to complete the attachment of a critical energy supply in this time that our Nation faces.

This is a safe supply, an economic supply. Earlier there were questions related to the quasi-tax which might be levied in the event the unlikely occurrence of commencement prebilling occurs.

That tax was viewed to be somewhere between 30 cents under one of the scenarios, and as high as $1.70 per month per customer under another scenario.

I would ask you to just think briefly what the tax for OPEC oil is per person in the United States. We spent $52 billion in 1980 for oil imports. That is equivalent to $200 per citizen, man, woman and child in the United States.

If you assume that a fourth or a half or whatever you want to assume is a quasi-tax, that by far exceeds what may be a potential under the prebilling commencement date.

I submit to you that the OPEC tax is in effect and it is viewed to be ongoing. That we as citizens, Government, industry of the United States should do everything in our powers constantly to help our Nation move forward with this safe, secure, and economic project.

Thank you.

[Testimony resumes on p. 662.]
[The prepared statement of Mr. Hawks follows:]

STATEMENT OF
NORTHERN BORDER PIPELINE COMPANY

SUBMITTED BY
HOWARD L. HAWKS

Mr. Chairman and Members of the Subcommittee:

I am the President of Northern Plains Natural Gas Company. Northern Plains Natural Gas Company is the Managing Partner (Operator) for the Northern Border Pipeline Company. I am here today to describe the participation of Northern Border in the Alaska Natural Gas Transportation System (ANGTS) and to express the support of Northern Border for the President's proposed waiver of law under Section 8(g) of the Alaskan Natural Gas Transportation Act of 1976 (ANGTA).

Northern Border Pipeline Company is a General Partnership consisting of five Partners. The Partners and their parent companies are as follows:

1. Northern Plains Natural Gas Company is a subsidiary of InterNorth, Inc. Northern Plains Natural Gas Company is a Delaware corporation, with its principal office at 224 South 108th Avenue, Omaha, Nebraska. As I mentioned earlier, Northern Plains is the Managing Partner.

2. Northwest Border Pipeline Company, a subsidiary of Northwest Energy Company, a Delaware corporation, with its principal office at 314 East 200 South Street, Salt Lake City, Utah.

3. Pan Border Gas Company, a subsidiary of Panhandle Eastern Pipe Line Company, a Delaware corporation, with its principal office at 3000 Bissonnett Avenue, Houston, Texas.

4. TransCanada Border PipeLines, Ltd., a wholly-owned subsidiary of TransCanada PipeLines, with its principal office at Commerce Court West, Toronto, Ontario, Canada.

5. United Mid-Continent Pipeline Company, a subsidiary of United Gas Pipe Line Company, a Delaware corporation, with its principal office at 700 Milam Street, Houston, Texas.

Northern Border has been an active participant in the efforts to introduce Prudhoe Bay gas into United States markets since 1970. Northern Border was originally involved with the Arctic Gas Project which proposed construction of an overland pipeline from the Prudhoe Bay area of Alaska through Canada and into the lower 48 states. As a part of that project, Northern Border proposed to construct the U.S. Eastern Leg. In 1976, when the competing Alcan Project was proposed, the Sponsors of that project also proposed that Northern Border construct and operate the Eastern Leg of their project.

Subsequent to the passage of ANGTA, Northern Border was designated to construct and operate the lower 48 state portion of the "Eastern Leg" of the ANGTS as a part of the Alcan project. The Northern Border transportation system will receive Alaskan gas at the Saskatchewan-Montana border from the Canadian-owned portion of the ANGTS and transport such gas through 1,131 miles of 42-inch pipeline to be constructed along a route diagonally through the States of Montana, South Dakota, North Dakota, Minnesota, Iowa and Illinois terminating at a point near Dwight, Illinois.

Northern Border is presently engaged in constructing what is referred to as the "Prebuild Project."

The concept of a Prebuild Project first appeared both in the President's Decision on the ANGTS, issued in September of 1977, and in the companion National Energy Board (NEB) decision in Canada. Those decisions recognized that both countries might benefit from a new export of surplus Canadian gas to the U.S., and that such gas, if transported through prebuilt portions of the ANGTS in southern Canada and the lower 48 states, could provide significant assistance to successful completion of the entire ANGTS. In pursuing this objective, Pan-Alberta Gas Ltd. thereafter contracted to sell 1.04 billion cubic feet per day (1.04 bcf/d) of Canadian gas to Northwest Alaskan Pipeline Company over a term of 12 years. Northwest Alaskan in turn contracted to resell such gas to the following purchasers:

1. Pacific Interstate Transmission Company, 240,000 Mcf per day (240 MMCF/d), for delivery to Southern California through "Western Leg" facilities;

2. (a) United Gas Pipeline Company (United), 450,000 Mcf per day reducible to 400 MMCF/d commencing with the third contract year;

   (b) Northern Natural Gas Company (Northern Natural), 200,000 Mcf per day (200 MMCF/d), increasing at Northern's option to 250 MMCF/d commencing with the third contract year; and

   (c) Panhandle Eastern Pipeline Company (Panhandle), 150,000 Mcf per day (150 MMCF/d).

   The total volume of 800 MMCF/d purchased by the above-named companies is to be transported by Northern Border through the U.S. "Eastern Leg Prebuild" facility.

Pan Alberta Gas Ltd. made application to the National Energy Board of Canada for authorization to export the volumes in accordance with the terms of its contract with Northwest Alaskan. However, the term of the license issued by the National Energy Board was not concurrent with the 12-year term of the contracts. The National Energy Board issued an export license authorizing the export of 800,000 Mcf per day for the period commencing November 1, 1981 through October 31, 1986 and 400,000 Mcf per day during the period November 1, 1986 through October 31, 1987. In addition, the export license provides that to the extent that volumes are not exported during the first year (i.e. 11-1-81 through 10-31-82), such unexported volumes can be added to the 400,000 Mcf per day authorized for export in the year November 1, 1986 through October 31, 1987 up to a total of 800,000 Mcf per day in that year. Any unexported first year volumes not taken during the period November 1, 1986 through October 31, 1987 can be taken in the next contract year. However, this right of "make up" is conditioned upon a prior determination by the National Energy Board that the "make up" volumes to be exported are surplus to Canadian domestic requirements.

The practical effect of the above is that the term of the current export license is 5-1/2 years with a conditional right to add the volumes not taken at the beginning of the 5-1/2 year period to the end of the period. Northern Border has been advised that Pan-Alberta Gas, Ltd. has filed an application with the National Energy Board to firm up the export of the volumes which will not be taken in the first contract year and to extend the term of the license to coincide with the term of the contracts.

Concurrent with the proceedings before the National Energy Board in 1979, Northern Border made application to the Federal Energy Regulatory Commission for authority to construct and operate the Prebuild segment of the Eastern Leg. Specifically, Northern Border requested authorization to construct and operate 823 miles of 42-inch pipeline and one compressor station extending from a point on the U.S.-Canadian border to a point of interconnection with the facilities of Northern Natural Gas Company near Ventura, Iowa and for authority to transport 800,000 Mcf per day for the accounts of United, Northern Natural and Panhandle.

Additionally, applications were filed by Northwest Alaskan for authority to import the volumes to be purchased from Pan-Alberta Gas, Ltd. and for authority to resell the volumes to the

U.S. Purchasers. Also, Northern Natural Gas Company made application to construct and operate facilities to receive the Canadian gas into its system at Ventura, Iowa and for authority to transport and to exchange-displace the volumes in order to get the volumes purchased by Panhandle and United into their systems. By orders dated April 28, 1980 and June 20, 1980, the FERC issued the appropriate authorizations necessary to implement the Prebuild Project.

Subsequent to the issuance of these orders, orders were issued by the NEB and the FERC authorizing Northern Border to transport an additional 175,000 Mcf per day of Canadian gas and to construct and operate a second compressor station. Of this total, 100,000 Mcf per day will be transported for the account of Northern Natural Gas Company and 75,000 Mcf per day will be transported for the account of Natural Gas Pipeline Company of America. The licenses issued by the NEB for the export of these volumes expire on October 31, 1987.

Following the issuance of the FERC authorizations, Northern Border undertook the activities necessary to commence construction. As a part of these activities, Northern Border finalized the financing of the Prebuild Project by execution of a Loan Agreement dated December 15, 1980.

The source of the debt financing for the Prebuild Project is a consortium of 28 United States and Canadian banks which will provide up to seventy percent of the cost of constructing the Prebuild Project. The remaining thirty percent will be contributed by the Partners as equity.

The major terms and conditions of the Loan Agreement are as follows:

a) The Loan Agreement provides for the borrowing of up to $1.055 billion. The loan has two variable-rate price options. The first option is a domestic rate plus 3/4 percent. The domestic rate is the greater of (a) the three-week moving average of 90-day certificates of deposit plus 1/2 percent or (b) the average prime rate for three designated banks (Canadian Imperial Bank of Commerce, Citibank and Morgan Guaranty Trust). The second option is the average London Interbank Offered Rate (LIBOR) for six reference banks (Canadian Imperial Bank of Commerce, Bank of America, Chase Manhattan, Citibank, Morgan Guaranty Trust, and Royal Bank of Canada) plus 1.125%. This rate is locked in for a period of either three or six months as elected by Northern Border.

b) The loan requires infusions of debt and equity equally until combined debt and equity total $772 million. Thereafter, additional debt ($515 million) is drawn until the total of debt and equity equals $1.287 billion. The next $129 million will consist of 70% debt ($90 million) and 30% equity ($39 million). The final $129 million, if required, would consist of 50% debt and 50% equity.

c) Repayment will begin six months after the initial billing commencement date. The first payment is anticipated in March, 1983. The amount of the repayment will be the debt percentage of the capitalization times depreciation and deferred taxes. The final payment of up to 40% will be in 1993. Also, prepayment is required when Alaskan gas flows or earlier at the Borrower's option.

d) TransCanada PipeLines, Ltd. has agreed that if, at maturity, the loan is not fully paid, TransCanada will contribute equity to Northern Border in an amount at least equal to all amounts due under the Loan Agreement or would purchase Northern Border's notes issued under the Loan Agreement for such amount. TransCanada and the other Sponsors of Northern Border have agreed that in the event TransCanada is required to make an equity contribution, the other Sponsors have the right to participate in such equity contribution.

In addition to the above, TransCanada agreed to certain other undertakings. TransCanada is obligated to purchase the remainder of the equity in the Partnership under certain conditions. This purchase obligation is triggered if on the final day of the tenth year after the date of completion of the Prebuild Project the Management Committee of Northern Border has not determined that the additional facilities on the Northern Border system required for transportation of the Prudhoe Bay gas are to be constructed and the only gas being transported through the Prebuild line is Canadian gas ultimately destined for consumption in TransCanada's market area in Eastern Canada. In addition, TransCanada has agreed to a "backstop" by assuring the transportation of TransCanada gas should Canadian exports terminate prior to the shipment of Alaskan gas. If these exports terminate before Alaskan gas begins to flow through Northern Border, TransCanada would become obligated for payment of the full Northern Border cost of service.

Thus, the repayment of the debt and the return of equity is assured through the provisions of Northern Border's Tariff, TransCanada's backstop obligation, and TransCanada's obligations to repay the debt at maturity.

In May of 1981, mainline construction of the pipeline began in the States of Montana, South Dakota, Minnesota and Iowa. Commencement of construction in North Dakota was delayed until September of 1981 because of litigation over the route of the pipeline in North Dakota. As of this date, approximately 575 miles of the pipeline have been installed. The remaining 250 miles will be completed by the fall of 1982. We anticipate no overall delay in completion of the Prebuild Project, nor do we anticipate any cost overruns.

As demonstrated above, the completion of the Prebuild Project is being accomplished without the necessity for any special legal or regulatory treatment. Given that the Prebuild Project is only one segment of the entirety of the ANGTS, its complexities, uncertainties, and problems are obviously less than for the totality of the project.

With the completion of the Prebuild Projects, the first steps will have been taken in bringing the totality of the ANGTS to reality. This early building of both the Eastern and Western Legs of the ANGTS to transport a total of 1,215,000 Mcf of Canadian gas to United States markets (which is the equivalent of 190,000 barrels of oil per day) will not only supplement current energy supply, but more importantly, will facilitate the financing of the remainder of the project, will lessen the inflationary effects on cost and will ease the demand on labor and capital during the construction of the remainder of the Alaska Natural Gas Transportation System.

Northern Border will construct the remainder of the Eastern Leg concurrent with the construction of the Alaskan portion of the ANGTS. The facilities to be constructed to complete the Eastern Leg consist of 308 miles of 42-inch pipeline extending from Ventura, Iowa, to a point near Dwight, Illinois and the construction of 12 compressor stations. We now estimate that the cost of these facilities will be approximately one billion dollars. Under the provisions of the Partnership Agreement, the Partners are committed to contribute the equity requirements for completion of the additional facilities, and we are confident that we will be able to secure the debt financing.

When completed, the Eastern Leg will have capacity to transport 2.2 billion cubic feet per day without further expansion.

As a long time participant in the efforts to bring Alaskan gas to market, Northern Border cannot emphasize too strongly the nation's need for completion of the ANGTS:

1) The Prudhoe Bay proven reserves now approximate 26 trillion cubic feet, and the completion of the ANGTS not only gives access to these reserves but will also encourage exploration and development of additional North Slope reserves.

2) The completion of ANGTS will go a long way in leading to the connection of Canada's sizeable frontier reserves in the McKenzie Delta-Beaufort Sea Area. At the present time, the NEB is unwilling to include these frontier reserves in their calculations of available surplus. Access to these reserves through the ANGTS would be a most positive step toward causing the NEB to modify its policy.

3) Failure to complete the ANGTS, on the other hand, could very well jeopardize the future export of Canadian gas to the detriment of the United States as the Canadians will most certainly take into consideration our failure to complete the ANGTS as they set their national energy policy. It is in the best interest of the United States to continue to purchase and import Canadian gas as long as such purchases result in a positive net economic benefit to our nation.

4) Failure to complete the remainder of the ANGTS will most certainly have a detrimental effect on Northern Border, its shippers and the ultimate consumer. It would eliminate the major source of supply for Northern Border and a critical, long term source of supply for consumers of the United States. Furthermore, the most economical

operation of the system will not be realized if the Alaskan volumes are not transported. Generally, the unit cost of transportation through a pipeline is reduced as the volume transported increases. Additionally, a failure to complete the ANGTS due to problems which are rectifiable will most certainly be taken into account by the Canadian government in the determination as to whether or not to extend the term of the Pan Alberta export license beyond the current 5-1/2 years.

Northern Border strongly urges the Congress to act favorably on the President's proposed waiver of law.

Thank you for inviting me to submit this statement on behalf of Northern Border. I would be pleased to answer any questions which the members of the Committee may have.

Mr. SHARP. Thank you.

STATEMENT OF DANIEL E. GIBSON

Mr. GIBSON. I am Daniel Gibson, assistant general counsel of Pacific Gas & Electric Co.

I want to thank you for inviting Mr. Sproul, our executive vice president of Pacific Gas & Electric Co. to appear today on behalf of our companies. His prepared remarks have been submitted here for the record and he has asked that I offer his apologies for not being able to be here due to his acceptance of a prior invitation to speak before a Senate committee at this same time.

I will attempt to summarize his remarks, though, and answer any questions that you have.

Our companies, Pacific Gas & Electric Co., and its 50 percent-owned subsidiary Pacific Gas Transmission Co., support approval of the waiver package which is now before you.

We believe that such approval is vital to the timely and successful completion of this project and we believe that the project's successful completion is essential to our ability to continue to meet our own customers' needs for reasonably priced and secure gas supply.

Mr. Sproul's written statement discusses these matters in some detail and describes our longstanding and substantial commitment to the construction of a gas pipeline from the Alaskan North Slope through Canada to California and the other lower 48 States.

In addition to our participation in the Alaska partnership, P.G. & E. and its subsidiary, Pacific Gas Transmission Co., will, as you know, build the so-called Western Leg of the Alaskan Natural Gas Transportation System.

We estimate that together our two companies will invest about $1½ billion in the Western Leg of the project alone, so that our commitment even to the Western Leg alone is a very substantial one.

We are very proud of the fact that 160 miles of the PGT Western Leg facilities are among the first portion of the ANGTS that became operational on October 1 of this year.

They are now involved in carrying a substantial quantity of new Canadian gas to the southern California market.

PGT's facilities, these first facilities of the ANGTS, went into service on time and within their approved cost estimate of $176 million.

P.G. & E. and the 9.5 million people who live in our service area in northern and central California have a very great deal at stake in this project.

P.G. & E. views it as a key element in our long-term gas supply strategy. We have a contract to purchase Prudhoe Bay gas. That gas will satisfy almost 10 percent of our projected requirements.

We believe completion of the gas pipeline will create opportunities to purchase additional North Slope gas, but perhaps most importantly we link our chances for continuation of our Canadian gas supply to the timely and successful completion of the project.

You see, northern California, through the Alberta to California pipeline which is now in existence, has for about 20 years been receiving a substantial quantity of gas from Alberta on a very reliable basis.

In recent history northern California has been dependent upon this supply from Canada for almost 50 percent of its total gas supply.

It has been by far our most reliable, long-term source and its continued availability, as existing export permits expire, is a top priority of our company.

The existing export licenses are expiring. If there are no extensions of those by the end of 1986, we will have lost almost 60 percent.

Sixty percent of this very substantial gas supply.

We believe that the completion of this project may help us to avoid that. How? Because of the fact that if Canada, through this project, is given the opportunity to tap its far northern frontier supplies, it will be in a better position to continue exports of gas to the United States.

It is as simple as that. It is plain to us that how the Congress acts on the waiver package will play a very critical role in shaping future U.S. and Canadian relations, and in particular future Canadian gas export policy.

The failure by the Congress to approve the waiver proposal, I think, will be viewed in Canada as a breach of a commitment by the United States, a commitment which our Canadian neighbors believe was made by the President and the Congress to assure Canada that its authorization of the prebuild project would be followed by favorable U.S. Government action on the overall project completion.

We are deeply concerned about this. If Congress turns down the waiver package, it will preclude private financing of a system which is required by law to be privately financed and that will put into question the timing and availability of the benefits that Canada expects from the project.

We cannot deny Canada those benefits and at the same time assume that Canada will go out of its way to continue to expand or extend the exports on which we are now relying.

We believe that is just wishful thinking.

Thus it is our hope that Congress, in its deliberations on the waiver package will set aside the ideology and look at the facts.

Those facts tell us that the ANGTS is and continues to be in the best interests of this Nation and our customers and that the project can and must be built; that the waiver proposal is a small price to pay for this energy security, and that with congressional approval of the package, P.G. & E. and the other project sponsors can move ahead to try to achieve private project financing of the Alaskan portion of this system.

Thank you. If you have any questions, I would be happy to try to answer them.

[Testimony resumes on p. 680.]

[The prepared statement of John A. Sproul follows:]

STATEMENT OF JOHN A. SPROUL, EXECUTIVE VICE PRESIDENT
PACIFIC GAS AND ELECTRIC COMPANY

I appreciate the opportunity to submit this statement to the Subcommittees on behalf of Pacific Gas and Electric Company (PGandE), its subsidiary Calaska Energy Company (Calaska), and its other affiliates participating in the Alaska Natural Gas Transportation System (ANGTS), to express our support for the President's proposed waiver of law under Section 8(g) of the Alaska Natural Gas Transportation Act of 1976 (ANGTA).

PGandE is a combined gas and electric utility, serving a population of more than 9 million people in northern and central California. Since 1972, PGandE and its affiliates have been working actively to create a direct pipeline system from Alaska, through Canada, to bring gas from Prudhoe Bay to California and the other lower-48 states. Our substantial and continuing commitment to the ANGTS reflects our view that its successful completion is essential to our ability over the long term to continue supplying our customers with reasonably priced and reliable gas supplies.

In my remarks, I wish to describe more fully the nature of our participation in the ANGTS, the importance of the project to PGandE's gas supply future, and the reasons why we believe Congressional approval of the proposed waiver of law to be vital to the timely and successful completion of the project, and to continued cooperation with Canada, which is the source of about 40% of PGandE's existing gas supply.

I. PARTICIPATION BY PGandE AND ITS AFFILIATES IN THE ANGTS

PGandE and its affiliates are participants in the Alaskan. Canadian and U.S. Western Leg segments of the ANGTS. Our involvement began in 1972, when we joined the Arctic Gas Project, which proposed construction of an overland pipeline from the Alaskan North Slope, through Canada, to the lower-48 states. After the Arctic Gas route was rejected by the Canadian and United States Governments in 1977, PGandE joined with Northwest Energy Company, the selected Alaska Highway Pipeline Project's original United States sponsor, and other gas transmission companies, including former Arctic Gas members, in sponsoring the Alaskan pipeline portion of the ANGTS. Through its subsidiary, Calaska, PGandE has been a member of Alaskan Northwest Natural Gas Transportation Company, the partnership which will build the Alaskan portion, since the partnership's formation in early 1978.

Our special contribution to the ANGTS is the construction of its western delivery leg. The U.S. Western Leg is the sole responsibility of PGandE and its 50%-owned subsidiary Pacific Gas Transmission Company (PGT), which were designated in the 1977 Decision and Report to Congress on the Alaska Natural Gas Transportation System (President's Decision) to construct, own and operate the new pipeline facilities that will assure direct delivery of Alaskan North Slope gas to markets west of the Rockies.

Direct and equal access of western consumers to the North Slope supplies was not always assured. We owe a special thanks to the many Senators and Representatives who saw to it that contemporaneous direct delivery of Alaskan gas to markets both east and west of the Rocky Mountains, and construction of the necessary new facilities, became a statutory mandate. The inclusion of that requirement in ANGTA made this project truly national in scope.

The Western Leg is a simple expansion of the existing PGT/PGandE pipeline system that has delivered Canadian natural gas to northern and central California and other western markets since 1961. The pipeline runs from the International Boundary near Kingsgate, British Columbia, to Antioch, California, in the San Francisco Bay Area. PGT owns and operates the facilities in the states of Idaho, Washington and Oregon. PGandE owns and operates the facilities within California. This 911-mile, 36-inch diameter pipeline delivers up to approximately 1 billion cubic feet per day of Alberta natural gas to PGandE. The pipeline facilities also transport for Northwest Pipeline Corporation (Northwest Pipeline) up to approximately 150 million cubic feet per day of Alberta natural gas, which is delivered by PGT at various points in Idaho, Washington and Oregon for distribution to gas consumers in the Pacific Northwest.

The Western Leg is a paralleling or "looping" of these facilities, through the installation of approximately 885 miles of additional pipe. With minor exception, the new facilities will be installed within the same right-of-way as the existing pipeline. No new compressor stations or compressor horsepower will be necessary for the volumes of North Slope gas expected to be initially available. The President's Decision left final determination of the pipe size and capacity of the ANGTS lower-48 facilities to the Secretary of Energy. As a result of decisions of the Secretary of Energy issued in 1980 and in January of this year, it now is planned that 42-inch diameter pipe will be used for the entire length of the PGT/PGandE expansion.

The Western Leg originally was proposed by PGT and PGandE in 1974, in connection with the Arctic Gas Project. However, because the PGT/PGandE proposal also was compatible with the competing and ultimately selected Alaska Highway Pipeline proposal, it was designated in the President's Decision as the project's western delivery leg. North Slope gas destined for California markets will be carried over the full length of the PGT/PGandE facilities to the San Francisco Bay Area, with gas destined for southern California delivered over southern portions of the PGandE system to Southern California Gas Company. Through interconnection with the Northwest Pipeline system, the Western Leg also will be able to provide other western markets, in the Rocky Mountain area and the Pacific Northwest, with direct access to North Slope gas.

On October 1 of this year, the first portions of the ANGTS became operational. We are proud of the fact that this included 160 miles of the PGT Western Leg facilities, between Kingsgate, British Columbia, and Stanfield, Oregon, which were installed as part of the early construction or "prebuild" phase of the ANGTS, to deliver new Canadian gas imports to Southern California Gas Company. PGT's facilities went into service on time and within their approved cost estimate of $176 million. This was a major, but manageable, undertaking for PGT, which financed the facilities on a corporate credit basis, and which, through this expansion, has tripled the size of its pipeline investment.

PGT and PGandE will build the remainder of the Western Leg in the same general time frame as the Alaskan portion of the project. In "as spent" dollars, we currently estimate that the 431 miles of PGT's remaining Western Leg facilities will cost approximately $870 million, including AFUDC, and that PGandE's 294 miles of Western Leg facilities from the Oregon-California border to the San Francisco Bay Area will cost about $590 million, including AFUDC. A corporate credit form of financing is planned by both PGandE and PGT, with PGandE to be responsible for raising all of the capital associated with its Western Leg facilities, and for 50% of the equity investment in the remaining PGT Western Leg construction. In total, PGandE's additional Western Leg investment presently is estimated at almost $800 million.

Finally, PGT's Canadian affiliate, Alberta Natural Gas Company Ltd (Alberta Natural), is a participant in the Canadian portion of the project. Alberta Natural is a 49% interest holder in Foothills Pipe Lines (South B.C.) Ltd., which is to construct a total of 106 miles of 36-inch diameter pipeline for the ANGTS in southeastern British Columbia, parallel to Alberta Natural's existing pipeline. Approximately one-half of these facilities were installed for the "prebuild" phase and are now in service.

II. THE IMPORTANCE OF THE ANGTS TO PGandE'S GAS SUPPLY FUTURE

Our participation in the ANGTS is key to our long-term strategy to assure a continuing, reliable and adequate supply of gas for the millions of people in northern and central California. PGandE's existing sources of gas supply are Canadian natural gas brought to California by PGT; gas, principally from the southwest, purchased from El Paso Natural Gas Company (El Paso); California-source natural gas, and a small amount of Rocky Mountain gas produced by our gas exploration and development affiliates.

Although our natural gas requirements are projected to remain relatively stable, with moderate growth in our non-power plant requirements and a decline in fuel requirements for power plant use, our total existing supply is projected to decline significantly. Let me provide some statistics which illustrate this point:

1. Decline in El Paso supplies. In 1981, the gas supply from El Paso is projected to satisfy about 43% of PGandE's natural gas requirements. By 1987, however, when the ANGTS is scheduled for completion, available El Paso supplies are projected to satisfy less than 33% of such requirements, and by 1995, only about 21% of such requirements.

2. Decline in California supplies. Our California-source gas presents a similar case. In 1981, these supplies are projected to satisfy about 17% of our natural gas requirements, but by 1987 and continuing into the 1990's, available California gas supplies are projected to satisfy

no more than 9% of PGandE's natural gas requirements. Generally, with the exception of a recent, and what is projected to be short-term, upswing in available El Paso and California supplies, both our El Paso and California sources of supply have been declining since the early 1970's.

3. Expiration of existing Canadian gas export licenses. Since Canadian gas was first delivered to PGandE in 1961, it has been our most reliable source of gas supply, never having been curtailed or cut back. Nevertheless, without renewal of the gas export licenses issued to our Canadian supplier and subsidiary, Alberta and Southern Gas Co. Ltd. (Alberta and Southern), our available supplies from Canada will be reduced starting in late 1985, and they will be cut almost in half by 1987. By 1990, without license renewals, our Canadian supply will be reduced to about 20% of the currently authorized level, and by the end of 1993, all of Alberta and Southern's existing export licenses will have expired.

> Simply stated, in addition to the decline in supplies from El Paso and California sources, PGandE stands to lose almost another 20% of its present gas supply by 1987. By that year, without renewal of the Alberta and Southern licenses, supplies from these three sources, which now satisfy more than 99% of PGandE's natural gas requirements, are projected to satisfy less than two-thirds of such requirements, and by 1995, less than 30% of such requirements.

Since the early 1970's, PGandE has been engaged in a number of endeavors to augment this decline in its existing major gas supply sources. Our Rocky Mountain gas exploration and development programs are one such effort, but the new supplies we expect to develop will be only a partial solution. There will still be a substantial and growing drop in total supply as our existing major sources decline. At this time, PGandE has no assured source of natural gas to make up for this drop in supply.

Our chances for a reliable gas supply future turn on the successful completion of the ANGTS. More of that future is at stake in this project than in any other gas supply option on PGandE's drawing boards. There are several reasons why this project offers the greatest potential for continuing supply security for our customers.

First, the North Slope gas we expect to purchase from Exxon Corporation (Exxon) will satisfy almost 10% of our projected natural gas requirements. In 1979 PGandE contracted with Exxon to purchase one-third of its production from the Prudhoe Bay Reservoir under leases in the Prudhoe Bay Unit -- which is estimated at about 220 million cubic feet per day, assuming an average day Prudhoe Bay output of 2.0 billion cubic feet.

Second, the long-term prospects for development on the North Slope lead us to believe that the initial volumes are only a beginning, that this source of supply will be available for years to come, and that deliveries from Prudhoe Bay eventually will exceed the 2.0 billion cubic feet per day level. Therefore, we see the ANGTS as opening the door to North Slope gas supply opportunities which extend beyond the volumes and term of our existing contract with Exxon.

Third, and for us, most significant, we link our chances for continuation of our Canadian gas supply to the completion of the ANGTS. As I have explained, about 40%

of our existing gas supply is from Canada, and obtaining maximum available renewal of the Alberta and Southern export licenses is a top priority of PGandE.

Alberta and Southern now has on file with the National Energy Board of Canada (NEB or Board) an application to extend its licenses at currently authorized levels through late 1993, so that the Canadian gas available to PGandE would remain at the level of about one billion cubic feet per day through that period. In view of the Board's recently issued report, Canadian Energy, Supply and Demand 1980-2000, it is not clear whether, in the near term, the Board will be prepared to act favorably on Alberta and Southern's request. It is clear to us, however, that over the long term, our opportunity for export license extensions -- and indeed, the opportunity of this nation to continue to look to Canada as a major natural gas supplier -- will turn on whether we in the United States are in fact, and are perceived as, willing and able to proceed to completion of the ANGTS. There are many factors which could affect Canadian gas export policy, and our own prospects for extended export volumes, but, in our view, there is no single factor as significant as the ANGTS.

This project should allow Canada to connect its own sizable northern frontier reserves in the Mackenzie Delta-

Beaufort Sea area to market on an economic basis. Progress toward completion of the ANGTS should encourage further exploration and development in that area. It also should cause the NEB to modify its policy which now excludes Canada's established frontier reserves from the tests applied to determine whether there is a surplus of natural gas available for export -- a policy which the Board consistently has indicated will continue until it is satisfied that there is an assured means for bringing these reserves to market.

Most important, perhaps, are the consequences which we believe would flow if the ANGTS did not progress toward completion. This is a larger issue than access to the Mackenzie Delta gas. At stake is the credibility of the United States as an energy partner, and future Canadian gas export relations with the United States.

Our 20 years of reliance on Canadian natural gas and our long-standing relationship with Canada make us especially sensitive to this issue, and especially appreciative of the continued showing of good faith which the Canadian Government has made toward completion of the ANGTS, as best evidenced by its decision to authorize the prebuild phase of the project following the concurrent Congressional resolution and Presidential letter of support for the project in July 1980. Without further progress on the project, we believe that the Canadian Government may be increasingly cautious over how much additional gas is to be exported and who is to receive it. Generally, even though gas exports to the United States are a major source of revenue to Canada, it may become more difficult to justify increased export volumes, given a perception within Canada that the increased availability of Canadian supplies would allow the United States to defer or abandon completion of the ANGTS.

III. WHY THE PROPOSED WAIVER OF LAW MUST BE APPROVED

For PGandE and its customers, it is essential that the Congress act favorably on the proposed waiver of law submitted by the President. However we in the United States may wish to characterize it, failure to do so will be viewed in Canada as a breach of commitment by the United States -- a commitment which our Canadian neighbors believe was made by the President and the Congress, to assure Canada that its authorization of the prebuild phase would be followed by favorable United States Government action on overall project completion. To repeat, at stake for us is not only our future North Slope gas supply, but also the long-term continuation of our Canadian gas supply.

More specifically, the proposed waiver of law presents this Congress with a make-or-break choice concerning the financing and eventual completion of the project. If there is to be any hope of satisfying the private financing directive of the President's Decision, this proposed waiver of law must be approved. Such approval cannot guarantee that financing for the Alaskan portion of the project will be achieved. However, without this waiver of law, private financing can be ruled out completely, with the future of the project left uncertain.

Since the time of the President's Decision, it has been a recognized fact that the project's gas company sponsors do not, by themselves, have the capability to finance the Alaskan segment. Participation by the major North Slope producers is essential, but, as we have learned, no producer participation will be forthcoming without their receiving an equity interest in the project and without incorporation of the Prudhoe Bay conditioning plant into the designated ANGTS.

The largest banks in the country, who we hope will be major lenders to the project, also have told us that it is essential that there be mechanisms in place which help assure that the project debt will be repaid. These mechanisms include the proposed waiver of law to limit certain future regulatory action on the project, and the proposed provision on billing commencement.

It is undeniable that the billing commencement provision will impose some risks on our customers and other North Slope gas consumers which were not contemplated when the President and the Congress authorized this project in 1977. As a gas distribution company, we share the concern of our regulatory body, the California Public Utilities Commission, over the imposition of such risks. We would rather not ask that our customers bear such risks if there were another way to achieve private financing. However, we know of no such other way. Moreover, we are convinced that the risks to be shared are manageable and minimal. If, for some reason, it is actually necessary to use this provision to accommodate project delay, the short-term costs which are imposed will be far outweighed by the project's long-term benefits.

I firmly believe that this country will find a way to make this project a reality. It must. It is in the long-run best interests of the country's economy and security. When ideological disputes are set aside and the facts are examined, we believe that this proposed waiver will be seen as a rational and fair way to overcome a critical roadblock to the private financing of the project. Therefore, we respectfully urge the approval of the waiver package submitted by the President. If approval is not forthcoming, the ANGTS will suffer a major setback, to the detriment of our customers' and this nation's future energy security.

Thank you for inviting me to submit this statement on behalf of PGandE and its related companies. We would be pleased to answer any questions which the Subcommittees may have concerning these remarks.

Mr. Sharp. Thank you very much.

I have a couple of general questions.

One is, should the Congress and the President adopt a policy of immediate deregulation of natural gas or a policy that would result in basically old gas in this country being deregulated by the time Alaskan gas is flowing in in 1986 or thereabouts?

Would that substantially change the financial positions for your companies in the ability to market that gas and the feasibility of this project, in your judgment?

Mr. Gibson. Mr. Chairman, the answer is no, it would not. We believe that deregulation and the basic economics and the basic viability of this project are completely independent of each other.

In the event of deregulation, if that were to occur, we can certainly find an approach which will assure the continued marketability of this gas.

Mr. Sharp. Do you—I don't know if you have any difference of opinion on that, Mr. Hawks.

Mr. Hawks. Mr. Chairman, Northern Border is a transporter, and, as I indicated earlier, is owned by five pipeline or natural gas and energy companies.

I am sure each of those has spoken to that, but I would add that it would not affect the viability of the northern border pipeline system as a project.

Mr. Sharp. Let me ask you with respect to the price of the gas that is coming down, the estimates range, but it could be well above $10 per Mcf in the initial years. Do you think there is any risk that the Canadians will use that as the trigger price for other gas.

I should have asked our Canadian friends on the last panel. I didn't think to do that.

Do you understand what I am saying? There is a tendency to say we ought to get the best price that is crossing the border into the United States and this price will probably be above most other prices that have been coming in, as we see it.

Or do you see that differently? Do you see that as a danger? I don't think that is a critical key element in whether this waiver package is going to pass.

Mr. Gibson. Mr. Chairman, I agree with you, I don't think it is critical to this waiver package.

No, I don't think that is a substantial possibility. I think the Canadians are responsible and very rational stewards of their own energy supply and energy resources, and I think they would always be looking to the question of what the economic effect of such an action would be on the markets and on the marketability of their own gas as well as the other supplies that might be available to those markets.

Mr. Sharp. Reading between the lines, do I assume from what you are saying that if all import gas went to the price of some of these estimates on Alaskan natural gas, that would be an economic problem and that it would be hard to sell it here?

Mr. Gibson. In the first place, we are speculating about what the price of the Alaskan gas might be, but, based upon that assumption, yes, I think that we would have more of a difficulty certainly in selling the gas.

When I say the gas, I am talking about the Canadian gas.

Mr. **Sharp**. Thank you.

I would be happy to recognize our colleague from Indiana, Mr. Coats.

Mr. **Coats**. I have no questions, Mr. Chairman.

Mr. **Sharp**. Gentlemen, we appreciate your testimony.

As you perhaps heard me say to the last panel, if some of our members who are not with us today have some questions, we might want to submit them in writing.

We think that is unlikely, but we would appreciate that cooperation if we could.

Thank you very much.

Mr. **Hawks**. Thank you, Mr. Chairman.

Mr. **Sharp**. On Tuesday we will have the Secretary of Energy returning at 10 a.m. That room is to be announced.

There will be further questioning by members of both subcommittees.

The subcommittees stand in recess.

[Whereupon, at 10:55 a.m., the subcommittees were adjourned, to reconvene at 10 a.m., Tuesday, October 27, 1981.]

ALASKA NATURAL GAS TRANSPORTATION SYSTEM

TUESDAY, OCTOBER 27, 1981.

House of Representatives, Subcommittee on Fossil and Synthetic Fuels, Committee on Energy and Commerce; and Subcommittee on Energy and the Environment, Committee on Interior and Insular Affairs,

Washington, D.C.

The subcommittees met, pursuant to notice, at 10 a.m., in room 2318, Rayburn House Office Building, Hon. Philip R. Sharp (chairman, Subcommittee on Fossil and Synthetic Fuels) presiding (Hon. Morris K. Udall, chairman, Subcommittee on Energy and the Environment).

Mr. Sharp. Last week the Secretary of Energy testified but had to leave early to be at the White House. We did not complete the questioning of the Secretary by the two subcommittees, so the Secretary was willing to come back this morning.

Mr. Secretary, if you have anything further you wanted to add before we open up questioning for our colleagues, we would be happy to hear from you. Otherwise, we will go right to questions.

Secretary Edwards. I have said everything I need to say, Mr. Chairman.

Mr. Sharp. Mr. Weaver?

Mr. Weaver. Mr. Secretary, thank you for coming back to us.

In your opening statement you have said and I have heard other remarks where you say you are a staunch supporter of free markets and the free enterprise system. As a matter of fact, you believe they are essential to the national security of this country and free enterprise system.

We don't want any socialism around here degrading our country. Most, if not all, of the previous witnesses that followed you, who were asked if they would return to this committee and ask for Federal guarantees or Federal funds if they couldn't put the financing together, none, to my knowledge, said they would not.

With you as a staunch advocate of the free market and free enterprise system, I would like to hear you say right now a resounding and absolute "no" to any Federal funds or guarantees to this pipeline. Would you do that, sir?

STATEMENT OF HON. JAMES B. EDWARDS, SECRETARY, DEPARTMENT OF ENERGY, ACCOMPANIED BY R. TENNEY JOHNSON, GENERAL COUNSEL, AND WILLIAM NISKANEN, MEMBER, COUNCIL OF ECONOMIC ADVISERS

Secretary **Edwards**. Mr. Weaver, I am in complete agreement. As resoundingly as I can state it, this administration does not plan to put any Federal guarantees, or any funds into this project. We have felt all along, as do our friends to the north, Canada, that this should be financed by private funds only.

Mr. **Weaver**. Thank you very much.

Secretary **Edwards**. I appreciate your letting me put that on the record again.

Mr. **Weaver**. Marvelous. Pleased to have you on the record on that.

You also said, as did a number of other witnesses, that there were, however, no alternatives to the pipeline to get the gas out, no feasible alternatives.

Secretary **Edwards**. Yes.

Mr. **Weaver**. We are going to have a hearing in which several nationally renowned petroleum engineers—one in particular that I know, Sullivan S. Marsden of the Stanford University Petroleum Engineering Department—have come forth with what they believe to be a feasible plan to get the gas from the Prudhoe Bay field into the lower 48 of the United States through production of methanol in Prudhoe Bay and shipping liquid methanol south.

Dr. Marsden's plan would be to ship it through the existing oil pipeline. Do you have any comments on that, sir?

Secretary **Edwards**. Not being an expert in the field of petroleum engineering, I am not in a position to evaluate it. However, some of my friends in whom I have great confidence have told me that they have looked to every other alternative known to man, including the possibility of transporting some of the gas under the Arctic ice to the lower 48 in submarines and——

Mr. **Weaver**. I understand that, but let's talk about methanol. That is the one I am interested in. Dr. Marsden has made a case. His article is going to appear in the Oil and Gas Journal in another week or so. Let me read you a paragraph or two from it. This is the article by Dr. Marsden.

> This is one of the several attractive features of this approach (the methanol approach). It is incremental and can be utilized to allow maximum oil production by adjusting the gas adjustment rate accordingly.
>
> A gas pipeline would require very high initial rates, both to fill the pipeline and ensure maximum throughput return. This has been estimated at more than 2.2 to 2.4 billion cubic feet a day. This could lead to lower ultimate oil recovery.
>
> Another attractive feature of this approach is that wet or field gas could be used directly in the methanol synthesis if it contains only negligible amounts of H2S, which is the case at Prudhoe Bay.
>
> For a gas pipeline, it is necessary to put the field gas through an expensive gas treating plant to remove condensible hydrocarbons and CO_2. The significant amount of the latter in Prudhoe Bay gas is actually fully consumed in the methanol synthesis, rather than being lost to the atmosphere, as it would be in a gas treating plant.
>
> The fuel grade methanol produced from wet gas would probably contain other low molecular weight alcohols which would give it a somewhat higher heat of combustion than a purer or chemical grade methanol.
>
> There is every reason to believe that methanol can be pumped safely in batches in the Alyeska oil pipeline and carried in ordinary tankers out of Valdez. Some additional storage capacity for methanol may be needed at Prudhoe Bay and/or Valdez.

The last pumping station, which would bring the line to its fully designed capacity of two million barrels per day, would have to be constructed.

At the present time, Alyeska handles 1.5 to 1.6 million barrels a day of crude oil. In time, it may also have about 0.1 million barrels per day from the Kuparuk and Lisburne reservoirs at Prudhoe Bay.

It is estimated that production from the main (Sadlerochit) reservoir at Prudhoe Bay will peak in the mid-1980s. Following an oil drought of a dozen years or so in this part of Alaska, we now have reports of new, smaller fields near Prudhoe Bay, but it is far from certain that these will make a significant contribution to production and create a demand on the pipeline.

If we assume a gas production rate of 1.5 billion cubic feet per day, this would be fully converted, if there is a need for conversion, to 0.4 milllion bbl methanol per day. Thus, there is sufficient capacity in the Alyeska line to handle essentially all of the methanol produced from Prudhoe Bay to natural gas.

We had testimony that 12 percent of the gas is CO_2. At the present time it handles 1.5 billion barrels of crude a day. In time, it may also have about 1 million barrels from the Kuparuk and Lisburne reservoirs at Prudhoe Bay.

It is estimated production for the main reservoir at Prudhoe Bay will peak in the mid-1980's. If we assume a gas production rate of 1.5, this would be fully converted if there is a need for full conversion to 0.4 million barrels of methanol a day. Thus, there is sufficient capacity in the Alaska line to handle essentially all the methanol produced—natural gas.

He goes on to say he believes the whole program can be done for $6 billion, not the $20 or $30 or $40 billion the pipeline has been estimated at. Therefore, I asked the oil company people, is this internationally renowned petroleum engineer just a dreamer, an idiot? They didn't say he wasn't. He says this is feasible to do. So don't you think we have a realistic alternative?

The only objection I heard to it was that it took 25 percent of the energy—I don't know that, that was just what the witness said—to convert natural gas to methanol. The other objection was—this is I think the acute objection—that, of course, you don't get it out as fast. You don't get the bucks in the hands of the companies as fast.

That may be interesting for the companies, but we are dealing here with the national interest, the public interest. It may be in the public interest to make sure we have a steady supply for several years of natural gas coming from that field. Could you comment, sir?

Secretary **Edwards**. Mr. Weaver, I feel if that plan is a feasible plan, it should compete with all other plans, and the bankers and financiers should certainly look at these and evaluate them. If that is the best plan, then that is the way we should go.

I don't have a closed mind on any plan.

Mr. **Weaver**. Mr. Secretary, beautiful. I appreciate that answer. Let me just point out that the big bucks, and the people involved, may have, probably likely have, a vested interest against doing it that way.

So to evaluate it from that point of view, is it the people involved or the big bucks who may have a vested interest in trying to build the pipeline for reasons of their own, for quicker production of the gas, more dollars coming to them, et cetera?

Thank you, Mr. Secretary.

Mr. Chairman.

Mr. **Sharp**. Thank you.

I did want to indicate that Chairman Udall had hoped to be with us but couldn't this morning. He has an intense interest in the pipeline issue. His ranking minority member is with us this morning.

The gentleman from New Mexico, our colleague, Mr. Lujan, is recognized for 5 minutes.

Mr. **Lujan**. Thank you, Mr. Chairman. Welcome, Mr. Secretary.

Let me visit with you about what I consider probably the two main issues. One is the prebilling and the producer ownership. On the prebilling, it is my understanding that that is the only way that banks would even approach financing it. Is that your understanding?

Secretary **Edwards**. Mr. Lujan, I understand that is one of the problems. President Carter made a commitment to our friends to the north that he would try to waive the law in order to allow the possibility of financing this pipeline.

Mr. **Lujan**. By our friends to the north, you mean the Canadians?

Secretary **Edwards**. Yes, the Canadians.

Mr. **Lujan**. President Carter agreed to do that. What do you estimate would be the cost of gas when it comes out of the pipeline after it is all completed?

Secretary **Edwards**. Mr. Lujan, I have not done an estimate of the cost of the gas. I have heard estimates everywhere from $4.65 to $16 per MCF. But I really haven't seen a projection of what the cost would be to the consumer upon completion of the pipeline.

I really think that falls in the area of the private market. If the gas is a marketable item, then the pipeline will be built—once these waivers are passed and we give them that opportunity. If it is not a marketable product, I don't think the gas transportation system will be built.

Mr. **Lujan**. I know in putting forth our arguments, I would assume when you give me a range of $4.65 to $16, that the proponents use the $4.65 figure and the opponents use the $16 figure. That is usually what happens.

Secretary **Edwards**. That is the usual and customary method; yes.

Mr. **Lujan**. Well, we all tend to do that, you know. When we are trying to prove a point, we go from one extreme to the other.

Mr. **Weaver**. Will the gentleman yield?

Mr. **Lujan**. Is he on the $4.65 side or $16 side?

Mr. **Weaver**. No; the witness from the pipeline said in 1987 dollars it was $17. That was what the witness actually said, Mr. McMillian and his aides.

Mr. **Lujan**. Mr. Secretary, do you have any idea what the cost of natural gas would be in 1987 after the regulations go out? Does it come anywhere close to the $17?

Secretary **Edwards**. If we can deregulate, I think the cost of natural gas would be somewhere in the range of $6, $7, $8 in 1987. Probably a little bit more than that. It is hard for me to look in the crystal ball and tell.

Mr. **Lujan**. So if you take the high figure and low figure and come somewhere in between it, as most things normally happen, the costs would be about the same, without making that kind of decision, you can't, as Secretary of Energy, economics will dictate whether it is built or whether it isn't, seems like that is going to be generally the price of gas at that time?

Secretary **Edwards**. Mr. Lujan——

Mr. **Lujan**. I am just trying to get a feel for it. I don't mean to have you look into a crystal ball or anything, but what your feel is.

Secretary **Edwards**. I think the people who would finance this project, if this waiver is passed,—the sponsors and producers have done an indepth analysis of what the price will be and would be better able to comment on it.

If it is a marketable product, they will build it. If it isn't a marketable product, I am sure the project will not be built. But without this waiver, I am sure the project has no chance of being built.

Mr. **Lujan**. On the producer ownership, what is the situation with the oil pipeline? Do the producers now own a piece of the action on the pipeline?

Secretary **Edwards**. It is my understanding that they own, the pipeline, and I will defer to my general counsel. Is that correct?

Mr. **Johnson**. Yes.

Mr. **Lujan**. What is the big deal about it, then, the producers owning the gas line? I fail to see the conflict of the ownership so long as it is subject to the rules of common carriers. I suppose that those kinds of things would come along.

Secretary **Edwards**. I will defer that to my general counsel, too, if you would permit me.

Mr. **Johnson**. Mr. Lujan, originally the concern was that expressed by the Department of Justice, which was concerned that these producers, if they had an equity share in the pipeline, would be able to restrict access and keep others out and prevent expansion of that pipeline.

Those were the antitrust concerns that the Justice Department identified and led the Department of Justice to recommend a prohibition on any of the producers having an equity interest.

Mr. **Lujan**. Would that necessarily follow or can that be handled by regulation or law or whatever?

Mr. **Johnson**. It certainly can be handled we think by the method proposed in the waiver, which is to provide that the FERC has to review actual participation and proposed participation and in consultation with the Attorney General render a view as to whether it is consistent with the antitrust laws. In that way they can determine that the owners would or would not be in a position to exclude others.

Presumably if they would be in a position to exclude others, it could not be consistent with the antitrust laws. On the other hand, if their share was such, and voting rights were such that they couldn't exercise control and exclude others and prevent the system from being expanded by others wanting to get in, then it would not be inconsistent with the antitrust laws.

We feel that with the waiver proposal, if the waiver is approved by the Congress, the FERC, in consultation with the Attorney General, would be able to make the proper judgments as to whether there would be antitrust violations.

Mr. **Sharp**. The time of the gentleman has expired.

The gentleman from California, Mr. Dannemeyer, is recognized for 5 minutes.

Mr. **Dannemeyer**. I had a chance to question the witness the other day, Mr. Chairman.

Mr. **Sharp**. All right. The gentleman from Indiana, Mr. Coats, is recognized for 5 minutes.

Mr. **Coats**. Thank you, Mr. Chairman. I will be brief, also.

Mr. Secretary, I appreciate your taking the time to come before us. I just want to establish again in my own mind and for the record, your position on this issue. I would ask you I guess to repeat the answer you made to my colleague from Oregon in that—and correct me if I am wrong—the administration is unalterably opposed to any type of subsequent loan guarantee, subsidy, equity participation, ownership, or development of a natural gas pipeline. You are merely here to ask for approval of the waiver package, which would facilitate private financing of the natural gas pipeline. Is that the correct statement?

Secretary **Edwards**. Mr. Coats, this administration is interested only in that, and we are only interested in this being financed through private sources. No governmental funds of any type, no Federal Government funds of any type, as far as this administration is concerned, will go into this pipeline, either in the form of loan guarantees or subsidies or any other way.

That doesn't mean that a few years from now if in case of a national disaster or national emergency or some situation like that that there may be some demand for Federal financing, but I don't see it in the foreseeable future.

We are purely interested in private funds going into this project, without loan guarantees from the Federal Government. I don't know how else we can say it, but I appreciate your asking me that question again because I do want it to be clear in the record.

Mr. **Coats**. Just one other question, then. Perhaps one of your associates can answer.

In following up on the question about sending methanol through the existing oil pipeline, it was my understanding that we currently are utilizing that oil pipeline to capacity.

Is it a fair statement to say that if we ship, transship methanol through that pipeline, we would be substituting one domestic energy resource for an existing domestic energy resource without adding to our total domestic production?

Secretary **Edwards**. That is correct. There are 1.5 million barrels of oil a day coming through that pipeline. If you displace that with methanol, you would be displacing one type of energy for another.

We need the oil coming down. It is a domestic source of oil, and certainly it is one of those resources that we want to continue coming at full capacity, at least for the present time.

Mr. **Coats**. Thank you, Mr. Chairman.

Mr. **Sharp**. The gentleman from Kentucky, Mr. Rogers, is recognized for 5 minutes.

Mr. **Rogers**. I thank the chairman.

Mr. Secretary, good morning. It is good to have you before our subcommittees.

Secretary **Edwards**. Thank you.

Mr. ROGERS. Back in 1977 the President at that time, President Carter, first submitted this project to Congress. At that time the Congress went over the matter and finally approved a plan, based on the assurance that the private sector would finance the project without advance consumer billing.

Today these sponsors of the pipeline, a mere 3 or 4 years later, are back before us telling us that this is no longer possible, that they can only finance the project if they are given the right of advance billing, and only if they are given the right to allow the producers to own a substantial portion of the project. Only then would they be able to get the financing that they say that they need.

I am wondering what circumstances have changed in that relatively short period of time that now convinces the developers of the program that they must have advanced consumer segment billing, which I find to be a rather distasteful feature of the proposal.

Secretary EDWARDS. Mr. Rogers, one of the major things that have changed is that President Carter made a commitment to the Government of Canada that he would seek what changes were necessary to bring about the private financing. This prebilling aspect of the waiver allows the producers, the sponsors and the consumers all collectively to take a certain amount of the risk, so that this resource can be brought down and made available to the consumers.

I think the likelihood of this prebilling to take effect is highly unlikely, although there is a possibility.

This project will not be financed, in my opinion, unless we get the waiver.

I think one thing that is often overlooked when you talk about this tremendous project is that it would bring the equivalent of 400,000 barrels of oil down and distribute it to the lower 48 States. Only about 25 percent of this gas would go to residential consumers. The other 75 percent would go to help our industries and our commercial facilities in the lower 48 States. I don't know whether it has been mentioned in the testimony before.

I guess I am charged with the task of making sure that we in this country have enough energy to turn the wheels of the plants and the factories and the industries of this Nation so that we can get our people back to work. We have got to come up with a tremendous increase in energy in the next 20 years if we are going to fulfill our commitment to 33 million young Americans who will be coming into the job market during those years.

So I think to say that this is going to affect only the residential consumers is rather shortsighted. Two billion cubic feet of gas a day coming down, helps assure our future energy supply, furnishes jobs for our people. It also makes this product available to the residential consumer.

I am sure back during the gas shortages in the 1970's that the consumers would have loved to pay a little bit more for this gas if they could have been assured of gas to heat their homes.

Mr. ROGERS. Well, it seems to me that there may be a little bit of a feeling that the developers are really asking for a risk free adventure based in large part on the advanced billing of not necessarily residential, but all private users, and if the project is financially successful, which I think it would be, the American public, those private consumers, aren't going to share the profit involved in that project. It is going to be those private developers, the pipeline owners, the banks, the oil companies involved.

Why should we ask the American public, the consumers of the gas, to fiannce basically a risk free project by people, the largest banks, the largest pipelines, the largest oil companies? Why should we underwrite that with the American consumer's checkbook?

Secretary **Edwards**. Well, the consumers are getting the benefit of this product, and if they want this tremendous resource brought down to them for their use, then don't you think it is fair and just to let them share in the risk a little bit? That is what this is all about. I think we have got to focus on what the costs would be to the consumer. For example, the only cost to the consumer in the precompletion billing waiver would be if one portion of this pipeline is completed before the other portions are completed. Once all three are completed, that precompletion billing waiver would not apply; in other words, they would not be billed in the same manner once the total project is completed. But the only time they are liable for this prebilling is if, say, the Canadian pipeline segment were completed and the Alaskan pipeline segment and processing plant were not completed. Then they would be liable for the amount of the completion portion. The amount would be about $1.50 to $1.75 a month per residential user until the total project was completed. It would only be for that short period of time, if at all. Before this would take place, the FERC must have established a day certain whereby this total project should be completed, that date would have come to pass, and the Federal Inspector must have certified that in fact that portion is completed and ready to go into operation.

Now, if one segment of the project is completed before that day certain set by FERC, then there is no prebilling during that period of time. For this prebilling to take place, some part has to be completed. The date certain set by the Federal Energy Regulatory Commission must have passed, and the other project, one or two of the other three segments must not have been completed.

We have a list here, if you would like to put it in the record, of the estimates of the cost. For example, if the conditioning plant were left incomplete and the other two segments were completed, it would cost the consumer about $1.60 a month. If the Alaskan pipeline segment was not completed and the other two were, it would cost residential consumers about $1.06 a month. If the Canadian pipeline segment were completed and the other segments were not completed, it would cost about 75 cents a month. If the conditioning plant plus the Alaskan pipeline segment is completed and the Canadian segment were not completed, it would cost about $1.16 a month. These are in 1980 dollars, by the way. If the Alaskan and Canadian pipeline segment were incomplete and conditioning plant was completed, it would cost about $.31 a month.

Mr. **Sharp**. Without objection, we will make that a part of the record.

[The information follows:]

POSSIBLE PRE-COMPLETION BILLING CHARGES

The staff of the Office of the Federal Inspector (OFI), using the sponsors' cost estimates, conducted a preliminary analysis of the possible pre-completion billing charges that could be imposed on U.S. residential natural gas consumers. At this time no estimates are available on the possible charges to industrial or other potential consumers. The OFI analysis was done using a number of assumptions, including projected interest rates of 14 percent and an inflation rate of 11 percent.

It should be noted that no pre-completion charges can be levied until a segment is complete and successfully tested and not before the date certain established by the Federal Energy Regulatory Commission as the most likely date when the entire ANGTS would begin operation. The sponsors of the conditioning plant and Alaska pipeline segments can not receive any return on or of equity through pre-completion billing charges. If authorized by the Federal Energy Regulatory Commission, they would recover actual operation and maintenance expenses, actual current taxes, and amounts necessary to service debt. The sponsors of the Canadian pipeline segment will have the opportunity to receive a pre-completion charge based on the full cost of service. The Federal Energy Regulatory Commission must authorize all pre-completion billing charges.

The results of the OFI staff analysis, which estimated the monthly charges to residential consumers for each completed segment or combination of completed segments, are shown below:

Segment(s)	Monthy Charge (1980 dollars)
Conditioning plant completed but Alaska and Canadian pipeline segments delayed.	$0.31
Alaska pipeline segment completed but Canadian pipeline segment and conditioning plant delayed.	$0.85
Canadian pipeline segment completed but Alaska pipeline segment and conditioning plant delayed.	$0.75
Conditioning plant and Alaska pipeline segment completed but Canadian pipeline segment delayed.	$1.16
Conditioning plant and Canadian pipeline segment completed but Alaska pipeline segment delayed.	$1.06
Alaska and Canadian pipeline segments completed but conditioning plant delayed.	$1.60

Mr. **Sharp**. If I could just add, are those average figures for residential users, or for all users?

Secretary **Edwards**. This is purely for the residential user. We have not done an estimate of the industrial users because the industrial users may contract some way to pay more than this. We have not done an analysis of the industrial market. These are strictly residential users.

Mr. **Rogers**. If I could ask one question?

Mr. **Sharp**. Your time is quite over.

Secretary **Edwards**. My General Counsel wants to comment. If I am getting into trouble, I want to know about it in a hurry.

Mr. **Johnson**. May I add one point to what the Secretary has said; that is, that the producers and sponsors are at risk in this project. It is not a question of putting the entire risk on the consumer. If one or another of these segments is not completed on time, thus delaying the project, the waiver the sponsors of the Alaskan segment may not receive any return on or of their equity.

Their equity amounts to a very substantial amount of money, $7.5 billion. So they are not getting any return on that $7.5 billion or any return on the capital until the entire project is finished and the gas is flowing.

So, they are at risk. There is no doubt you are correct, too, that the consumers are at risk, but it is not correct to say they are bearing the entire risk.

Mr. **Sharp**. The time of the gentleman has expired.

The gentleman from Oregon, Mr. Smith, is recognized for 5 minutes.

Mr. **Smith**. I have no questions.

Mr. **Sharp**. The gentleman from Pennsylvania, Mr. Murphy, is recognized for 5 minutes.

Secretary **Edwards**. Mr. Chairman, Mr. Niskanen has brought to my attention that I should amend my earlier discussion on the Alaska oil pipeline. There is 400,000 barrels a day extra capacity in that pipeline if additional pumping stations were built.

That would be sufficient to bring down as much methanol as would be needed. I just wanted to clarify that for the record.

Mr. **Sharp**. Thank you, Mr. Murphy.

Do you have any questions?

Mr. **Murphy**. Thank you, Mr. Chairman.

Just an aspect that, first, it strikes me that the oil pipelines and oil facilities were all built with private capital and there was no advance cost requested from the ultimate consumers.

Why do you believe that the financiers of the natural gas pipeline are in any different position than the oil companies were when they privately financed the total operation before they recovered a dollar?

Secretary **Edwards**. Mr. Murphy, the magnitude of the project is the only difference. Of course, we think of the Alaskan oil pipeline as an enormous project, but ANGTS is a 4,800 mile project that is the biggest private investment in the history of mankind. This is one of the reasons for the necessity of sharing the risk.

Mr. **Murphy**. Your figures at present are $18 billion, is that correct, for the three segments?

Secretary **Edwards**. No, our figures are $23 billion for the three segments. That is in 1980 dollars, and $45 billion in as spent dollars.

Mr. **Murphy**. Do you have a comparison on what the oil cost was in comparison to this?

Secretary **Edwards**. I would have to call on someone else because I can't come up with the cost of that oil pipeline at this time. We can get those figures for you and enter them in the record, if you like.

Mr. **Murphy**. I think that it might be helpful if we could have a comparison of the private dollars that were raised at that time.

[The information follows:]

COMPARISON OF OIL PIPELINE COSTS WITH GAS PIPELINE PROJECTIONS

Figures provided by industry sources indicate through the end of 1977 direct outlays for the Alaska oil pipeline totaled $7.8 billion in as-spent dollars. When $1.36 billion on interest used during construction is included, total expenditures through 1977 were $9.1 billion. These figures include the pipeline and terminal at Valdez but do not include the cost of tankers to transport oil from Valdez or the cost of two pumping stations added since 1977.

ANGTS sponsors have projected the cost of the Alaskan pipeline segment of the ANGTS to be $10.8 billion in 1980 dollars exclusive of interest costs. The gas conditioning plant, which is necessary to prepare the gas for shipment, will cost $3.6 billion in 1980 dollars without interest charges.

Mr. **Murphy**. The chairman advises me his recollection was that it was about $8 billion. He followed that with some interest. One final question, Mr. Secretary.

If we allow the prebilling, obviously we will then take one segment and complete that. I see your staff shaking their head, but if I am going to be the guy that is in charge of spending the money, I am going to spend the money that I am going to get back first.

This may be an integrated system, and it is, but what is to prevent the financiers from doing the Canadian section or the plant or one section, and prebilling, recovering their money, and then of course the fear that we would have in setting aside or making this waiver, what guarantee do we have, the country or on behalf of its consumers, that the other two segments will then be built without any further pistol to our head type operation, saying now you have got to do this or now you have got to do that?

We have got to use Government funds. We have to have further waivers. We have to allow it all to be passed through. Once we allow a third of it to be passed through the consumers, what guarantee do we have that they will then proceed with the other two-thirds?

Secretary **Edwards**. I would like for Mr. Niskanen to reply to that question.

Mr. **Niskanen**. Mr. Murphy, there will be no advanced billing prior to a date certain established by the FERC, the estimated completion date. There would also be no advance billing in the event that all of the segments were available at the same time after that date.

So the advanced billing would only be for those parts of the system that are complete after the date certain established by the FERC, and not for any section that is not complete.

Now, for the Alaskan segment and for the conditioning plant, there will be no advanced billing of return on or of equity. So the equity owners of the pipeline and the conditioning plant will get no advanced billing under any circumstances, and there will be no advanced billing for any sections that are not complete.

So this differs substantially from what you may associate with the construction work in progress type of financing, in that this advanced billing is limited to those circumstances in which there is a delay after the estimated completion date by one or two of the three components.

The primary assurance that the people who manage this project will have an incentive to complete it is that the equity owners receive nothing on their money at all until the whole system is complete.

The people who have invested in those sections that are not complete receive nothing whatsoever. Those parties will have a very strong incentive to complete the system and maintain some coordination of the overall segments.

It is also important to recognize that the waiver proposal submitted by the administration is significantly more restrictive than that requested by the sponsors. The sponsors had asked for a general waiver that would permit FERC to authorize advanced billing for each identifiable segment of the Alaskan pipeline as it was complete.

As you increase the number of segments, that approximates construction work in progress. The particular waiver proposal that is submitted authorizes advanced billing only on the basis of a three-part system with the Canadian pipeline, the Alaskan pipeline, and the conditioning plant being defined as the three identifiable parts.

So, there will be no advanced funding for any construction work in progress, and there will be no advanced funding for any of the equity in the Alaskan part of the system. The only advanced billing for equity would be in the Canadian pipeline in the event one of the two components in the Alaskan system were delayed.

Mr. SHARP. The time of the gentleman has expired.

The gentleman from Illinois, Mr. Corcoran, is recognized for 5 minutes.

Mr. CORCORAN. Thank you, Mr. Secretary.

I appreciate the fact that you have been able to come back here this morning. I must say at the outset that I regret that I have not been able to participate in all of the hearings, but I was here when you testified earlier and when Mr. McMillian testified on behalf of the company that is involved.

I have had a chance to reflect on your testimony and peruse the three pounds of testimony Mr. McMillian provided us. I guess I don't have a great deal of difficulty with the waivers per se, but I have a more fundamental problem which will influence my ultimate disposition on the matter; that is, as we consider the costs involved, particularly if we view the ultimate cost of the project itself in 1987 dollars as somewhere in the neighborhood of $45 billion, that translates into an ultimate cost of transportation of about $15 per MCF. Then, if you add the $3 that is provided for in the act for the gas itself, that is $18 gas.

I just have one question. Who is going to buy $18 gas?

Mr. NISKANEN. The average pipeline charges over the life of the pipeline are likely to be in the $5 to $6 range. The estimate that has been made about the pipeline charges in 1987 are based upon a conventional pipeline tariff which is front-loaded.

We have not passed judgment, in submitting the waiver proposal, about the details of the financing proposal or about the judgments that FERC will make in structuring the pipeline tariff.

Something which may be conceived to be unconventional financing modes, as well as a change in the nature of the pipeline tariff, may be necessary to make that gas marketable, particularly if we have decontrol of that gas in that same period of time.

Nobody is going to pay $18 gas if they have an alternative of $5 gas. There is no question about that. This is not $18 gas over an extended period of time. It would be if you use a conventional pipeline tariff, and then actually the pipeline tariff falls in nominal dollars over the whole life of the pipeline, and falls with inflation, of course, very fast in real dollars.

There is no long-term commitment, however, to using that particular kind of pipeline tariff, and any number of other forms of tariff could be considered.

Mr. CORCORAN. At the present time, there are some gas prices in the $8, $9, and $10 range. That is because they can roll that in with the very low-priced old gas. It just seems to me that whether you evaluate this on the basis of accelerated decontrol, which I would prefer, or on the basis of a continuation of the present controls on old gas, in the latter case, ultimately, and certainly by 1987, you are going to have used up a lot of that old gas.

So, what are you going to have to combine it? How are you going to mix it to get it to a point where it is anywhere close to a market price that would sell?

Mr. NISKANEN. The average tariff over the life of the project is likely to be in the $5 to $6 range per Mcf in 1980 or 1981 dollars. The value of the gas then, or value of the pipeline will depend upon what happens to the price of alternate fuels in the next 20 or 30 years.

I think there is a high probability that you will be able to market gas with a $5 to $6 tariff. The particular problem arises with this front-loaded pipeline tariff, which leads to very high nominal tariffs in early years with both the nominal and the real tariff falling off very quickly.

I think some change along that line is very likely to be necessary to make the system viable, particularly in a decontrol environment.

Mr. CORCORAN. Doesn't that present the real problem that one of the waivers provides us with; that is, on the front end it is going to be high priced. But if I understand your statement, what you are saying is over the life of the project it is going to be in the $5 to $6 range, but at the front end, it is going to be high.

Of course, time and money go hand in hand. Now under the waiver, you are asking for the consumers to accept the contingent liability in the event it is not built. How much exposure do we have? How much time is that going to present us with?

The problem with that is, if you come back and say, well, we have to get this gas into the markets of the lower 48 States because of the national interest, then I should think that every taxpayer, every ratepayer would have to bear that burden rather than just those involved in this particular case.

Mr. NISKANEN. The primary benefit will be to the industrial and residential consumers in a limited part of the country, if it proves viable. Those are the people who are being asked to bear not construction financing—but they are being asked to bear contingent liabilities, to say it correctly, if one or more of the elements of the system are delayed.

Mr. CORCORAN. I just conclude, you are an economist I know, but if I looked at this thing at the outset of the decision that confronted you, I would have linked decontrol with this Alaska pipeline case.

As an economist, if you had your choice between the two approaches as to how to get more gas into the U.S. marketplace, which choice would you make as an economist, put all this money behind the pipeline, or decontrol natural gas in some way?

Mr. NISKANEN. These two issues are in no way mutually exclusive. We have addressed the relationships of them, but we are clearly not in a position of favoring one or the other in that we have not done a thorough economic evaluation of the pipeline.

Most of the material we have seen on the economic evaluation has been in a control environment, in an environment of continued controls.

Our very summary evaluation, however, on the basis of a decontrol environment suggests that it makes the gas harder to market in the near term, but it makes the present value of that gas higher over a longer period of time.

A conventional pipeline tariff with these front-loaded charges would make it harder to market in the near term.

Mr. SHARP. The time of the gentleman has expired.

The distinguished chairman of the full Energy and Commerce Committee is with us, Mr. Dingell.

The gentleman is recognized for 5 minutes.

Mr. DINGELL. Mr. Chairman, I thank you.

Mr. Secretary, can you submit to the committee all cost estimates relative to the pipeline project, please?

Secretary EDWARDS. Mr. Chairman, we have some cost estimates that have been done by other people. We will be glad to submit a summary of those, yes.

[The information follows:]

COST ESTIMATES FOR THE GAS TRANSPORTATION SYSTEM

The Department of Energy has made no independent evaluation of the cost of the Alaska Natural Gas Transportation System (ANGTS). DOE utilized, for planning purposes, the cost estimates of the ANGTS sponsors. The sponsors have a strong incentive for these figures to be as accurate as possible since they will be evaluated by the private financial community when deciding whether ANGTS should be financed.

Assuming the necessary legislative and regulatory actions have been taken by the second quarter of 1982, the sponsors estimate the cost of the ANGTS to be $17.5 billion in 1980 dollars, excluding contingencies and financing costs. Contingencies have been added for normal estimating errors and for abnormal events which may occur. These contingencies total $5.5 billion in 1980 dollars and represent 31 percent of the base estimate. The 1980 dollars estimate of $23.0 billion, including contingencies, consists of $3.6 billion for the conditioning plant, $10.8 billion for the Alaska pipeline segment, $5.8 billion (U.S.) for the Canadian pipeline segment, and $2.8 billion for the Eastern and Western Legs in the lower 48 states. Of the $23.0 billion estimate, the pre-build is estimated to cost $1.7 billion and the rest of the ANGTS is estimated to cost $21.3 billion.

Because these estimates are in 1980 dollars, it is necessary to add the cost of inflation and interest costs to estimate the amounts that must be financed. The sponsors have used a range of inflation and interest rates for this purpose from 7 percent to 11 percent and 10 percent to 14 percent, respectively. The resulting range of cash requirements to construct the total system is $38.7 billion to $47.6 billion. The pre-build phase, after accounting for the above interest and inflation rates, is estimated to cost from $2.4 billion to $2.7 billion. Therefore, the amount required to finance the remaining ANGTS facilities is $36.3 billion to $44.9 billion.

Mr. **Dingell**. Mr. Secretary, I have some very specific concerns. Now, what will be the impact of the decontrol of natural gas if it occurs on the pipeline at its economic viability?

Secretary **Edwards**. Mr. Chairman, I think in the short run, say in the latter 1980's, it will make it less attractive financially. In the out years it will make it more attractive financially if we decontrol.

In the life of the project I think you would have to say it would be a more attractive project under decontrolled circumstances than under controlled circumstances.

Mr. **Dingell**. Mr. Secretary, have you done economic studies on this?

Secretary **Edwards**. I will defer to my economist here on my left to answer that, if it would be all right with you.

Mr. **Niskanen**. We have not done a thorough, ground-up economic evaluation of the pipeline.

Mr. **Dingell**. Have you done any with regard to what happens if you have decontrol?

Mr. **Niskanen**. Our summary evaluation of this issue suggests that decontrol increases the present value of the gas in Alaska, but that given a conventional front-loaded pipeline tariff would make it somewhat harder to market in the early years.

Mr. **Dingell**. When you say you have suggestions it would be harder to market, would it be possible to market it at all, or do you have any studies which say that you could market it if decontrol occurred?

Mr. **Niskanen**. That depends very much on the price of alternate fuels. Given an expectation that real fuel prices will increase only slowly during the 1980's, it looks like it would be very difficult to market that gas.

Mr. **Dingell**. Very difficult. Now, you have no hard studies yet on this point, is that correct?

Mr. **Niskanen**. That is correct, Mr. Dingell. Our evaluation has been focused almost exclusively on what would constitute good law in the sense of the waiver package, and not on the question that we expect the financiers and sponsors to address.

Mr. **Dingell**. I would like to deal, if we can, specifically with the question of gas prices. If you get decontrol, what do you anticipate gas prices will go to, Mr. Secretary?

Secretary **Edwards**. Mr. Dingell, they will go somewhere between $4 and $5 probably.

Mr. **Dingell**. $4 or $5? Could they go higher? This is wellhead prices.

Secretary **Edwards**. Wellhead prices, yes.

Mr. **Dingell**. This is in the United States generally?

Secretary **Edwards**. That is right.

Mr. **Dingell**. Do you have any specific studies which indicate exactly where gas prices are going to go if you have decontrol?

Secretary **Edwards**. We have some specific studies, yes.

Mr. **Dingell**. Would you submit them to the committee, please?

Secretary **Edwards**. Yes, we will be glad to.

[The information referred to is entitled "A Study of Alternatives to the Natural Gas Policy Act of 1978," November 1981, with appendixes A through D, and has been retained in subcommittee files.]

Mr. DINGELL. Were those done in connection with this particular project and analysis the administration made with regard to this particular project?

Secretary EDWARDS. What is that, sir?

Mr. DINGELL. The studies with regard to decontrol.

Secretary EDWARDS. We will publish those studies on November 9, Mr. Chairman.

Mr. DINGELL. You have told us that it would be $4 to $5. You would add to that the cost of shipment of natural gas, if you decontrol natural gas. That would mean that you would add, then, the pipeline costs of this gas from Alaska to the U.S. border, and then the pipeline and distributing cost of natural gas inside.

Let's go right back. If you decontrol natural gas, the decontrolled natural gas would go to the Alaskan natural gas, as well as all other natural gas, would it not? The reporter doesn't have a nod key, I am sorry, Mr. Secretary.

Secretary EDWARDS. The answer to that, as I understand it, is yes.

Mr. DINGELL. So you start out with $4 to $5 for decontrol. Then your shipping costs down to the United States would be how much?

Secretary EDWARDS. Mr. Chairman, I am not sure of that. If you don't mind, Mr. Chairman, I think those details so far as the administration is concerned should be left up to the bankers and sponsors of the project and not up to us. It is they who will be putting the money into this project.

Mr. DINGELL. With all respect, that is probably true if this were a pipeline which the Federal Government were not interesting itself in by giving waivers of assorted kinds against existing law. It also would be true if we didn't have the payment for prebilling, to which I wish to address myself a little bit.

My staff advises me it would be $15 per Mcf. Is there any quarrel with that figure, Mr. Secretary?

Secretary EDWARDS. Mr. Chairman, I can't quarrel with that figure, or any other figure, because we really haven't done an indepth study. We feel that should be left up to those who are going to finance it and build it.

Mr. DINGELL. You would add, say, $1 to $2 per Mcf for distributing costs. So at the burner tip for the householder we are talking about something of the order of $22 per Mcf. For industrial purposes—I think we can come up with a pretty good contrast with oil.

On a Btu basis,you would have to multiply that by about six times, and that comes up to something like $112 for a barrel of oil at the time that the gas would be distributed. That means that industrial users are going to switch wherever possible, to other sources of fuel, including distillate and including residual fuel oil.

That tells me, Mr. Secretary, that if we have that price, and if you have the prebilling that we are talking about, we are liable to find ourselves in a situation where if the administration decontrols, first of all you will impact strongly on the economic viability of the project, maybe raise severe questions as to whether or not the project would be viable.

Am I incorrect in that appreciation?

Secretary **Edwards**. Mr. Chairman, that certainly could have some influence, but once again, I think that should be a decision made by those who are building it and financing it.

Mr. **Dingell**. Mr. Secretary, that would be true, I think, if we didn't have the prebill. The prebill says that the consumer then has the pleasure of meeting these charges.

Now, Mr. Secretary, if you have the prebilling coupled with decontrol, as I gather it, the impact of this is that you have gas that can't be sold. The pipeline consumer has to then pay the cost of the prebilling. Isn't that true?

Secretary **Edwards**. Mr. Chairman, I think that if the arithmetic comes out the way you have projected it, this gas will not be marketable, and I think that the pipeline will not be built. If the pipeline is built, I think there will have to be lower prices than that.

Mr. **Dingell**. Well, Mr. Secretary, with all respect to you, I have to observe that if this gas up there is decontrolled, it means that the consumers, if you take the prebilling, will then have to pay the interest and carrying charges on the pipeline. Isn't that a fact?

Secretary **Edwards**. During that short period of time, if it does exist, when one segment is completed and one or two of the other segments are not completed, and if this completion occurs after the date certain set by the Federal Energy Regulatory Commission and after the inspector has certified that that portion is in fact completed, then FERC may permit precompletion billing.

Mr. **Dingell**. I do not quarrel with what you have said. But if gas does not travel along that pipeline for any arrangement, the consumers under the prebilling provision still must pay the interest and carrying charges of that even if all segments of the line have been built and the line is not carrying gas at any particular point. Isn't that true?

Secretary **Edwards**. Mr. Chairman, I would have to call in Mr. Johnson on that.

Mr. **Dingell**. Let me rephrase the question because I am not sure that we have a clear understanding of the question. It may be that I am deficient in this matter.

Mr. Secretary, if the line is built and gas starts to move, or let's say if the entire line is completed and gas doesn't start to move because it can't be sold, or it starts to move and then stops moving because it can't be sold, doesn't the prebilling provisions continue to impose on the consumer the duty to pay interest and carrying charges on that line?

Secretary **Edwards**. As I understand it, Mr. Chairman, the answer to that is no.

Mr. **Dingell**. Can you explain to me why you give that answer? With all respect to you, I am not sure that is a correct answer, Mr. Secretary.

Secretary **Edwards**. Mr. Johnson would like to respond to that.

Mr. **Dingell**. All right, I would like to hear the answer from both of you gentlemen.

Secretary **Edwards**. I will let him go first.

Mr. **Dingell**. A very wise move, Mr. Secretary.

Mr. **Johnson**. Mr. Dingell, in the event that no gas flows but the pipeline is finished, there would in most instances be a requirement on the users to have a surcharge added to their bill which would be used to finance the debt and carrying charges. In the unlikely event that the producers tender gas to the purchasers, but the purchasers refuse that gas, then the bill would also carry an equity component.

On the other hand, that should be put in perspective because the U.S. producers and the U.S. sponsors of this project will not get any return on their equity and they will have invested $7.5 billion. The likelihood of their putting this project up to come up with unmarketable gas in my opinion is very slight. In addition, before the FERC can grant a final certificate for this pipeline, and thus before any charges can be made, the FERC has to be satisfied that it is going to be marketable. So, you have several different points at which a decision can be made as to the marketability of gas in 1986-87 as opposed to 1981.

Mr. DINGELL. Is FERC going to be compelled to arrive at a decision as to whether the gas will be marketable under existing law, or under the possibility of decontrol?

Mr. JOHNSON. The answer to that has to be speculative because we don't know if and when natural gas will be decontrolled. Presumably it would have to be calculated both ways by the sponsors in order to see how much at risk they were actually going to be.

Mr. DINGELL. That is a very good statement. Let me interrupt you with apologies. Mr. Secretary, is that the administration's position?

Secretary EDWARDS. Yes; that is correct.

Mr. SHARP. Would the gentleman yield?

Mr. DINGELL. Of course.

Mr. SHARP. Isn't it true that this is not an issue with respect to the waiver package that is before us: the question of what happens if the pipeline is complete, but in fact the gas is not marketable? That relates back to the tariff schedule already adopted, which would be appropriate for this project.

Under that tariff schedule, all gas users involved in the pipeline that are sponsors of this project will carry a demand charge that will include not only debt, but equity and capital; and, therefore, the whole project would be paid for regardless of whether or not gas flowed.

Millions of American consumers are locked into it. Now that has nothing to do with the waiver package before us. That is already built into the way the project is organized and the way the law and rate structure is set up. Is that correct?

Secretary EDWARDS. That is correct. The waiver is inapplicable at that point.

Mr. SHARP. So the consumer will carry everything if the project is adopted, but that is already a fact of life whether we pass or don't pass these waivers.

Mr. DINGELL. Mr. Chairman, I thank you. That was a very helpful question and I appreciate your assistance on this matter. My time is about to expire.

Mr. Secretary, what is the administration's position with respect to the possibility that project sponsors may come back to the Congress for further assistance or further waivers with regard to the law, even if the waiver package is approved?

Secretary **Edwards**. Mr. Chairman, I think that if this waiver package is approved by the Congress, which I hope it will be, I doubt very seriously that this administration would support any further waivers because we are fulfilling a commitment that was made by the previous administration and trying to pave the way so that private investors will be able to finance this project if it is a feasible project.

Mr. **Dingell**. Mr. Secretary, I observe that there is approximately $10 billion in costs yet to be secured. As I understand the figures, $27 billion will be needed for the Alaskan segment—$8 billion is guaranteed by the sponsors, $9 billion will be guaranteed by the producers, making $17 billion of approximately a $27 billion estimate here. That leaves about $10 billion yet to be secured.

First of all, does that indicate to you that the project can be built, and is the administration's position that the project can be built without further monetary support, guarantees, waivers, consumer exposure, or something of that sort with regard to the project?

Secretary **Edwards**. Mr. Chairman, if the project is to be built, it will have to be built without any further help from the administration beyond this waiver package.

Mr. **Dingell**. So the administration is saying that this is the last time you are going to be coming forward with regard to waivers?

Secretary **Edwards**. That is correct.

Mr. **Dingell**. But that still leaves us approximately $10 billion that is not yet secured by anybody's commitment. The question then is, can this project then be built without that security, as to the $10 billion, having been made available for the project sponsors?

Secretary **Edwards**. Mr. Chairman, that does not fall under my responsibility. I think it will be up to the sponsors and producers and bankers to come up with this additional money.

Mr. **Dingell**. That leaves us in a position of committing a number of things, including prebuild, without assurances that the project can be completed. You are saying that that then falls into the lap of the project sponsors. I think that is a very correct statement, but that statement is made with essentially the commitment that we will pay on prebuild, but no assurances that the project can be completed in all of its segments.

Secretary **Edwards**. Mr. Chairman, I believe the financial commitments must be put together prior to the beginning of this total project. The commitments must be made, according to the——

Mr. **Dingell**. Mr. Secretary, the statement has been made on a number of occasions that the United States has made a commitment to Canada with respect to the pipeline, and with respect to this waiver package.

What exactly are the commitments that have been made by this administration or the prior administration on the waiver package and overall pipeline project?

Secretary **Edwards**. Mr. Chairman, the way I understand it, there has been a commitment to seek such waivers as are necessary to allow the private sector to finance this pipeline. Beyond that, I don't know of any commitments made.

We have a copy of a speech of President Reagan. I think it has been submitted for the record previously, and we will be glad to resubmit it, if it has not been.

Mr. **Dingell**. I would think it would be helpful that they be submitted, if they have not already. I don't think there is any need to have them submitted twice for the record. Are there any other commitments made by the United States to Canada through communications between the State Department—less formal communications through the President or through any other agency of the Federal Government with regard to either the waiver package or the pipeline itself?

Secretary **Edwards**. None to my knowledge.

Mr. **Dingell**. None.

Mr. **Sharp**. The time of the gentleman has slightly expired.

Mr. **Dingell**. I thank you. Could I ask for just one thing?

Mr. **Sharp**. Sure.

Mr. **Dingell**. There is a United States-Canada prebilling agreement made by the prior administration, is there not? Mr. Chairman, I think that since this document does exist, it would be very useful for us to see it.

Secretary **Edwards**. Mr. Chairman, we will submit that document for the record.

Mr. **Sharp**. The Department of State will be represented on Friday in our hearings to also go into this question.

[Testimony resumes on p. 711.]

[The following material was received:]

ADDRESS
of
RONALD WILSON REAGAN
President of the United States of America

to

Both Houses of Parliament
in the
HOUSE OF COMMONS CHAMBER, OTTAWA
on
Wednesday, March 11, 1981

The President was welcomed by the Right Honourable P. E. Trudeau, Prime Minister of Canada, and thanked by the Honourable Jean Marchand, Speaker of the Senate and Honourable Jeanne Sauvé, Speaker of the House of Commons

Hon. Jeanne Sauvé (Speaker of the House of Commons): May I call this meeting to order?

Mr. President, we are grateful for the great honour you do us in addressing this joint session of the Senate and the House of Commons. I now invite the Right Honourable the Prime Minister to introduce our distinguished guest.

Right Hon. P. E. Trudeau (Prime Minister): Mr. Speaker of the Senate, Madam Speaker of the House of Commons, Mr. President and Mrs. Reagan, distinguished American visitors, honourable members of the Senate, members of the House of Commons, Excellencies, Mesdames et Messieurs.

Mr. President, yesterday I welcomed you to Canada. I repeat that welcome now because in this chamber Canada's democracy finds its ultimate expression. Here, in a special way, we speak on behalf of the people of Canada, and here the people of Canada are honoured to receive you, Sir.

Some hon. Members: Hear, hear!

Mr. Trudeau: Nations do not choose their neighbours; geography does that. The sense of neighbourhood, however, is more than a product of geography; it is a creation of people who may live as far apart as California and Quebec. It is what makes neighbours of Canada and Mexico, for instance. Canadians have noted this sense in you, Mr. President, and they know that it gives a particular meaning to your visit to Ottawa.

[Translation]

Our being neighbours is not simply a matter of geography, it is a state of mind. Beyond North America lies the New World which we inhabit by your side. We share the dreams which have made this continent a beacon in the night and a haven of hope for mankind. We share the courage and the love for work which have enabled us to build side by side two great federal states stretching from the Atlantic coast to the distant shores of the Pacific. Our accomplishment is dear to us. We are intent on preserving our heritage, but at the same time we gladly agreed to share with others the prosperity and freedom we found in this land.

[English]

It is right that we should celebrate what we hold in common. At the same time it is necessary that we remember and respect what makes us different.

More than 200 years ago our paths diverged, although our goals remained the same. You created a great republic with a presidential system. We evolved as a constitutional monarchy, under a parliamentary system. You placed yourselves from the outset under a written constitution that you continue to revere today. We are only now finishing the work of writing ours and bringing it home. You fought a tragic civil war. We have recently undergone the experience of a referendum that involved no violence, but nonetheless touched the very fibre of this country.

The differences of history affect our relations today, because they affect our perceptions, our approaches, our priorities. You, Mr. President, would perhaps agree with Thoreau where he says of the United States government:

This government of itself never furthered any enterprise, but by the alacrity with which it got out of its way. It does not settle the west. It does not educate. The character inherent in the American people has done all that has been accomplished.

The character of the Canadian people, Mr. President, has also made Canada. But here in Canada our own realities have sometimes made it necessary for governments to "further enterprise". Those realities and that necessity are still with us today.

[Translation]

Mr. President, you are visiting Canada at a particularly turbulent time in our history. We are in the process of completing the construction of our country. As an American you will appreciate the challenge which we must face. We are attempting to improve our democratic system and to cement our unity. Undoubtedly the din of our labour will reach your ears. However, I can assure you that our stormy but productive discussions will pave the way for a stronger Canada. Indeed, if I may recall a humorist's description of a megalopolis, we have decided that at the close of our current debates we will be "more than a confederation of shopping centres".

In the years to come the United States will be looking at a dynamic neighbour to the North. But putting its own house in order Canada will grow confident in itself. We will establish more clearly where our interests lie and we will pursue them with renewed vigour. One thing will remain unchanged, however: our deep friendship for the United States. In fact, Mr. President, the relations between our two countries will grow at the same time as Canada will grow. Of course, as neighbours we will hold frank discussions. But we have always spoken clearly to each another and our openness was based on mutual respect, as befits two sovereign and equal countries linked by deep friendship.

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[English]

Mr. President, you take on your awesome responsibilities at a time of stress and strain in international affairs. The world badly needs the courage and wisdom of the United States, that courage that it can provide under your leadership, Sir. I speak for all Canadians when I say we are ready to work with you in the cause of stability, security, and humanity.

Your task, our joint task, will not be an easy one. Many people fear that the world has become too complicated, that events have spiralled beyond the control of individuals or governments. They are tempted to give up, to opt out, and to hide from reality and responsibility. That way lies oblivion.

I believe we must neither cower before reality nor oversimplify it. Yet complexity should not obscure plain truth. On this most favoured of continents we cannot simply turn our gaze inwards and ignore poverty, ignorance, and injustice elsewhere.

To the east, Mr. President, we face a system that seems ill-designed to respond to change and growth. Nevertheless, the Soviet Union and the eastern European states may come to accommodate themselves at least to the dynamics of their own region. If, for example, the Polish people are able to work out their own destiny within a framework accepted by their neighbours, then they will have matched confidence with a no less remarkable evolution. Through courage and restraint they will have begun the process of making their reality more Polish and their system more responsive, more adaptable, and ultimately more stable.

In the west, Mr. President, we have a long familiarity with the pressures of change. In the past decade our economies have undergone a severe test as trusted assumptions have been found wanting. In the 1970s we were buffeted by the rude shock of rapid energy price increases. We were forced to recognize that the old monopoly of economic power was coming to an end. And yet, for all the strains upon us, our political and economic framework has survived, survived at least as well as the chicken and the neck to which Winston Churchill once referred to this chamber.

Each of the western countries has met the challenge of change in its own way. Since all of us have our own distinctive economic strengths and weaknesses, our solutions have had to be diverse. We have found no simple answers; we have fashioned no single way. With co-operation and consultation, however, we have been able to complement our various approaches.

At another level, though, we do have a single approach. Let there be no doubt about our unity in the defence of our most precious heritage—that democracy which is envied by those who rightly crave it and feared by those who wrongly deny its force.

As to north and south, we are not dismayed by the complexity of the problems. The poverty of the developing countries does not have to be permanent, nor is it unalloyed. The gap between the two groups is neither racial nor unbridgeable. In the growth of the oil producing states, in the vigour of the newly industrialized countries, there is convincing evidence of the dynamism and potential of the developing world. In the unity of the "south", there is not so much an identity of circumstances as an idea, a point of view, a shared sense of injustice. The poorer peoples are at the mercy of circumstances that leave them out of balance, often out of hope and too often vulnerable to opportunities who come poaching in troubled waters. The industrialized democracies have not only a humane duty but a strategic obligation to help developing countries in their struggle, their survival, and their success.

Mr. President, humanity will prevail. We in the new world can never be pessimists, for we are in a very real sense the custodians of the future. You have reminded us of this, Sir, on both sides of the 49th parallel. You have done so by evoking a past in which both our peoples have been the architects of change, not its victims.

I wish you well in your task and comfort in your burden. May part of that comfort come from the assurance of Canada's abiding friendship for your country and for your people.

Some hon. Members: Hear, hear!

Mr. Ronald W. Reagan (President of the United States): Mr. Prime Minister, Mr. Speaker of the Senate, Madam Speaker of the House of Commons, honourable Senators, members of the House of Commons, distinguished members of the diplomatic corps, ladies and gentlemen:

I came to this great capital of this great nation by crossing a border not which divides us, but a border which joins us.

[Text]

Nous nous sommes souvent serré la main par-dessus cette frontière et nous le faisons une fois encore aujourd'hui.

Des voix: Bravo!

[English]

For those of my own party who accompanied me, I have said that we have often shaken hands across this border and we are doing it once again today.

Some hon. Members: Hear, hear!

Mr. Reagan: Nancy and I have arrived for this, the first state visit of my Presidency, in the spirit expressed so well by a Calgary writer and publisher some 60 years ago. He said that the difference between a friend and an acquaintance is that a friend helps where an acquaintance merely advises.

We come here not to advise, not to lecture. We are here to listen and to work with you. We are here as friends, not as acquaintances.

Some years ago Nancy and I both belonged to a very honourable profession in California. And as I prepared for these remarks today, I learned that among those in the motion picture industry in Hollywood it has been estimated that perhaps as many as one out of five are of Canadian origin.

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Many of those whom I counted as close professional colleagues, indeed close personal friends, did not come from America's heartland as I did, but from the heart of Canada, as did most of you in this historic chamber.

Art Linkletter, Glenn Ford, Raymond Massey, Walter Pidgeon and Raymond Burr are but a few of your countrymen who are celebrated in our entertainment industry.

I believe I know the very special relationship between Canada and the United States. But with all respect to those few I have mentioned, I can do better than that. A young lady once came to Hollywood from Toronto. Before long, little Gladys Smith was embraced by our entire nation. Gladys Smith of Toronto became Mary Pickford. And I know you will forgive us for adopting her so thoroughly that she became known the world over as "America's sweetheart".

Some hon. Members: Hear, hear!

Mr. Reagan: America's sweetheart was Canadian.

Affinity, heritage, common borders, mutual interests—these have all built the foundation for our strong bilateral relationship. This relationship has grown to include some of the strongest economic links among the nations on this earth.

Some 16 per cent of America's total world trade is done with Canada. Our joint trade amounts to about $90 billion Canadian, annually. This is greater than the gross national product of some 150 countries.

It's estimated that three quarters of a million United States workers are employed in exports to Canada and, in turn, Canadian exports to the United States account for one sixth of your gross national product.

Not only is the vast bulk of this trade conducted between private traders in two free economic systems, but more than half crosses our borders duty free. Our seaways, highways, airways and rails are the arteries of a massive, interconnecting trade network which has been critically important to both of us.

Thus, while America counts many friends across the globe, surely we have no better friend than Canada.

Some hon. Members: Hear, hear!

Mr. Reagan: And though we share bilateral interests with countries throughout the world, none exceeds the economic, cultural and security interests that we share with you.

These strong and significant mutual interests are among the reasons for my visit here. Already I have shared with Prime Minister Trudeau very helpful discussions across a range of issues, to listen and to ensure that these important ties shall not lessen.

I am happy to say that in the recent past we have made progress on matters of great mutual importance. Our governments have already discussed one of the largest joint private projects ever undertaken by two nations—the pipeline to bring Alaskan gas to the continental United States. We strongly favour prompt completion of this project based on private financing.

Some hon. Members: Hear, hear!

Mr. Reagan: We have agreed to an historic [illegible] our trade in the Tokyo Round of the mul[illegible] negotiations.

We have continued our efforts, begun with the Great [illegible] Water Quality Agreement of 1972, to protect our joint [illegible]age in the Great Lakes. We want to continue to work co[illegible]tively to understand and control the air and water poll[illegible] that respects no borders.

Some hon. Members: Hear, hear!

Mr. Reagan: During my visit here, I have had the plea[illegible] of participating in the conclusion of two other im[illegible] agreements. We are renewing the North American Ae[illegible] Defence Command Agreement for five more years. For [illegible] than two decades now, NORAD has bound us together in [illegible] continental defence with an integrated command structure [illegible] belizing our interdependence. This agreement represents continued progress in our relations and mutual security.

Second, we have concluded an agreement regarding s[illegible] security benefits for those of our citizens who combine w[illegible] both nations. With this new agreement, those people wh[illegible] employed in both countries can be eligible for the co[illegible] benefits, and the workers will be eligible for those benef[illegible] whichever country they choose to live.

Some hon. Members: Hear, hear!

Mr. Reagan: Our deep and long time bilateral econ[illegible] interests lead me to depart from the norm today and gi[illegible] you a report on America's progress toward economic recov[illegible]

Five weeks ago, I reported to the American people tha[illegible] U.S. economy faced the worst economic mess since the g[illegible] world-wide depression. We are a proud people, but we are realists. The time has come for us to face up to w[illegible] described as a potential economic calamity.

I raise this issue today because America holds a ge[illegible] belief in its obligation to consult with its friends and ne[illegible]bours. The economic actions we take affect not just us a[illegible] but the relationships across our borders as well.

As we examined America's economic illness, we isolate[illegible] number of contributing factors. Our federal governme[illegible] grown explosively in a very short period of time. We fo[illegible] that there had grown up a maze of stifling regulations wh[illegible] began to crush initiative and deaden the dynamic indus[illegible] innovation which brought us to where we are. We [illegible] unbelievable deficits, this year alone reaching up to nearly [illegible] billion, including off budget items.

We found that these deficits got in no one's way because government found it easy to fuel inflation by printing m[illegible] money just to make up the difference.

The American taxing structure, the purpose of which wa[illegible] serve the people, began instead to serve the insatiable appe[illegible] of government.

Some hon. Members: Hear, hear!

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Mr. Reagan: If you will forgive me, someone has once likened the government to a baby. It is an alimentary canal with an appetite at one end and no sense of responsibility at the other.

Some hon. Members: Oh, oh!

Some hon. Members: Hear, hear!

Mr. Reagan: Our citizens were being thrown into higher tax brackets for simply trying to keep pace with inflation. In just the last five years, federal personal taxes for the average American household have increased 58 per cent. The results: crippling inflation, interest rates which went above 20 per cent, a national debt approaching a trillion dollars, nearly eight million people out of work, and a steady three-year decline in productivity.

We decided not just to complain but to act. In a series of messages and actions, we have begun the slow process of stopping the assault on the American economy and returning to the strong and steady prosperity that we once enjoyed.

It is very important for us to have our friends and partners know and understand what we are doing. Let me be blunt and honest. The United States in the last few years has not been as solid and stable an ally and trading partner as it should be. How can we expect certain things of our friends if we don't have our own House in order?

Americans are uniting now as they always have in times of adversity. I have found there is a wellspring of spirit and faith in my country which will drive us forward to gain control of our lives and restore strength and vitality to our economic system. But we act not just for ourselves, but to enhance our relationships with those we respect.

First, we are taking near revolutionary steps to cut back the growth in federal spending in the United States. We are proposing that instead of having our national budget grow at the unacceptable rate of 14 per cent per year, it should rise at a more sensible 6 per cent.

Some hon. Members: Hear, hear!

Mr. Reagan: This enables us to maintain the kind of growth we need to protect those in our society who are truly dependent on government services.

Just yesterday, I submitted our proposed budget for the coming year, and then immediately crossed the border.

Some hon. Members: Oh, oh!

Mr. Reagan: With extraordinary effort we have isolated some 83 items for major savings and hundreds more for smaller savings, which together amount to $48.6 billion in the coming fiscal year.

Our second proposal is a 10 per cent cut across the board every year for three years in the tax rates for all individual income taxpayers, making a total cut in tax rates of 30 per cent. This will leave our taxpayers with $500 billion more in their pockets over the next five years and create dramatic new incentives to boost productivity and fight inflation. When these personal cuts are combined with tax cuts to provide our business and industry with new capital for innovation and growth, we will be creating millions of new jobs, many of them, ultimately, on your side of the border.

Our third proposal is to eliminate those unproductive and unnecessary regulations which have slowed down our growth and added to our inflationary burdens.

Some hon. Members: Hear, hear!

Mr. Reagan: We shall do this with care, while still safeguarding the health and safety of the American people and, I might add, while mindful of our responsibility to have equal regard for the health and safety of our neighbours.

Finally, we will be working closely with our federal reserve system to achieve stable and moderate growth patterns in our money supply.

As I said, America's program for economic recovery is designed not merely to solve an internal problem. It is viewed by my administration as part of an essential effort to restore the confidence of our friends and allies in what we are doing.

When we gain control of our inflation, we can once again contribute more helpfully to the health of the world economy. We believe that confidence will rise, interest rates will decline, and investment will increase. As our inflation is reduced, your citizens and other world citizens will have to import low inflation from us.

As we begin to expand our economy once again and as our people begin to keep more control of their own money, we will be better trading partners. Our growth will help fuel the steady prosperity of our friends.

The control we regain over our tax and regulatory structures will have the effect of restoring steady growth in U.S. productivity. Our goods will go into markets not laden down with the drag of regulatory baggage or punitive levies, but with a competitive edge that helps us and those who trade with us.

Such new sustained prosperity, in an era of reduced inflation, will also serve world-wide to help all of us resist protectionist impulses. We want open markets. We want to promote lower costs globally. We want to increase living standards throughout the world. That is why we are working so hard to bring about this economic renewal.

There are, of course, other very important reasons for us to restore our economic vitality. Beyond our shores and across this troubled globe the good word of the United States, and its ability to remain stable and dependable, rely in good part on our having a stable and dependable economy.

Projecting solid internal strengths is essential to the west's ability to maintain peace and security in the world. Thus, our national interests, our bilateral interests and our hemispheric interests are profoundly involved in truly international questions.

That's why we must act now, why we can no longer be complacent about the consequences of economic deterioration. We have entered an era which commands the alliance to restore its

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leadership in the world. And before we can be strong in the world, we must be once again strong at home.

Some hon. Members: Hear, hear!

Mr. Reagan: Our friend, our ally, our partner, and our neighbour, Canada, and the United States have always worked together to build a world with peace and stability, a world of freedom and dignity for all people.

Now, with our other friends, we must embark with great spirit and commitment on the path toward unity and strength.

On this side of the Atlantic, we must stand together for the integrity of our hemisphere, for the inviolability of its nations, for its defence against imported terrorism, and for the rights of all our citizens to be freed from the provocations triggered from outside our sphere for malevolent purposes.

Across the oceans, we stand together against the unacceptable Soviet invasion into Afghanistan and against continued Soviet adventurism across the earth.

And toward the oppressed and dispirited people of all nations, we stand together as friends ready to extend a helping hand.

Some hon. Members: Hear, hear!

Mr. Reagan: I say to you, our Canadian friends—and to all nations who will stand with us for the cause of freedom—our mission is more than simply making do in an untidy world. Our mission is what it has always been—to lift the world's dreams beyond the short limits of our sight and to the far edges of our best hopes.

This will not be an era of losing liberty; it shall be one of gaining it.

This will not be an era of economic pessimism, of restraint and retrenchment; it will be one of restoration, growth, and expanding opportunities for all men and women.

And we will not be here merely to survive; we will be here, in William Faulkner's words, to prevail—to regain our destiny and our mutual honour.

Sometimes it seems that, because of our comfortable relationship, we dwell perhaps a bit too much on our differences. I, too, have referred to the fact that we do not agree on all issues. We share so many things with each other; yet, for good reasons, we insist on being different to retain our separate identities.

This captured the imagination of Ernest Hemingway when he worked as a writer for the Toronto *Star Weekly* in 1922. Hemingway was travelling in Switzerland and he noted that the Swiss made no distinction between Canadians and citizens of the United States. He wondered about this and asked an hotelkeeper if he didn't notice any difference between the people from the two countries.

"Monsieur", he said to Hemingway, "Canadians speak English and always stay two days longer at any place than Americans do." As you know, I shall be returning to Ottawa in July and, if you don't mind, I'll plan to stay as long as [illegible] else.

Some hon. Members: Hear, hear!

Mr. Reagan: I am not here today to dwell on our d ences. When President Eisenhower spoke from this sp 1953, he noted his gratitude as Allied Commander in W War II for the Canadian contribution to the liberation of Mediterranean. This touched my curiosity, and since I had participated in that war myself, I did a little res

In the Second World War there was something called 1st Special Service Force, a unique in [illegible] at the time. This force was composed of Canadians and Am cans distributed equally throughout its ranks, carrying flags of both nations. They served under a joint [illegible] were taught a hybrid of close-order drill, and [illegible] paratroopers, demolition experts, ski troops, and then a amphibious unit.

The 1st Special Service Force became famous for its h morale, its rugged abilities, and tough fighting in situati where such reputations were hard-earned. Alerted to t availability, General Eisenhower requested them for spe reconnaissance and raiding operations during the wi advance up the Italian peninsula. They were involved in Anzio beachhead campaign in Italy and were at the spearh of the forces that captured Rome.

The 1st Special Service Force made no distinctions whe went into battle. Its men had the common cause of freedom their side and the common denominator of courage in th hearts. They were neither Canadian nor American. They w in General Eisenhower's term, liberators.

So let's speak no more of differences today. Certainly y Ambassador, Ken Taylor, didn't when he first sheltered, a then spirited, six Americans out of the centre of Tehran a brought them to their freedom.

Some hon. Members: Hear, hear!

Mr. Reagan: Their daring escape worked not because of differences but because of our shared likenesses.

A final word to the people of Canada.

We are happy to be your neighbour; we want to remain y friend; we are determined to be your partner; and we are int on working closely with you in a spirit of co-operation. We a much more than an acquaintance.

Merci. Thank you.

Some hon. Members: Hear, hear!

Hon. Jean Marchand (The Speaker of the Senate): M President, Mr. Prime Minister, Madam Speaker of the Hou of Commons:

To receive you in our capital and our Parliament represe for us, President and Mrs. Reagan, not only a great joy a

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PRE-COMPLETION BILLING AGREEMENTS

There have been no formal agreements between the U.S. and Canada on pre-completion billing for the Alaska Natural Gas Transportation System (ANGTS). However, in June and July of 1980, when the Canadian Parliament was considering final approvals for construction of the "prebuild", the Government of Canada sought assurances that the U.S. was committed to construction of the full ANGTS. An explicit concern was whether the U.S. Government would support a waiver of finance condition 3 of the President's Decision so as to allow the sponsors of the Canadian pipeline segment to recover their investment when that segment was completed. In his July 18, 1980, letter to Prime Minister Trudeau, President Carter discussed the issue at length, concluding: "I would be prepared at the appropriate time to initiate action before the U.S. Congress to remove any impediment as may exist under the present law to providing that desired confidence for the Canadian portion of the line."

In February 1981, Secretary Edwards exchanged letters on ANGTS with H. A. Olson, Canadian Minister of State for Economic Development. Secretary Edwards wrote: "The United States Government is firmly committed to the completion of ANGTS in conformity with agreements between our two countries."

In President Reagan's March 1981 speech to the Canadian Parliament, he confirmed U.S. support for construction of the full ANGTS with private financing. In an Ottawa press conference during the President's visit, Secretary of State Haig expressed "reassurance and restatement of our earlier assurances" regarding ANGTS, but did not mention specific issues.

THE SECRETARY OF ENERGY
WASHINGTON, D.C. 20585

February 6, 1981

The Honorable H.A. Olson
Minister of State for Economic
Development
Ottawa, Canada

Dear Minister Olson:

I am pleased to write to you today on the occasion of the ceremony marking initial construction in the United States of the Western Leg of the Alaska Natural Gas Transportation System (ANGTS). This milestone and the excellent prospects for rapid completion of the entire prebuild are evidence of the continuing cooperation between our countries that will help assure success of the entire system.

I would like to take this opportunity to state again that the United States Government is firmly committed to the completion of ANGTS in conformity with agreements between our countries. We expect the United States sponsors and producers will soon reach an agreement on a tentative financing plan. This agreement will be a major step toward arranging private financing and obtaining final regulatory approvals for construction of the Alaskan segment.

I look forward to working with you to complete the remaining steps on the way to accomplishment of this important project.

Sincerely,

James B. Edwards

Canadian Embassy Ambassade du Canada

1746 Massachusetts Ave.,N.W.,
Washington, D.C. 20036.

February 18, 1981

Dear Mr. Secretary,

The Canadian Minister responsible for the Northern Gas Pipeline, Senator Olson, has asked me to convey to you his letter of February 17, the text of which follows:

"Dear Secretary Edwards,

I wish to acknowledge and to thank you for your letter of February 6. With construction underway on the southern sections of the pipeline in both Canada and the United States, we in Canada are confident that the entire line will be completed in a timely manner.

I was pleased to note in your letter the commitment of President Reagan's Administration to the line. I am certain that when the President visits Ottawa in the near future he and the Prime Minister will have an opportunity to review the significant progress to date and discuss the further actions required on both sides of the border.

I too look forward to working with you towards the completion of the entire line by our two countries."

I shall forward to you the original of Senator Olson's letter when it arrives by diplomatic bag.

Yours sincerely,

Peter M. Towe,
Ambassador.

The Honourable James B. Edwards,
Secretary of Energy,
Washington, D.C.

Mr. **Dingell**. Mr. Chairman, there are some memorandums summarizing these agreements, which I understand are down there in the administration. I would think that they would be also helpful to us to have available.

Secretary **Edwards**. Any documents we have relative to this project we will be glad to submit.

[The information follows:]

UNITED STATES-CANADA AGREEMENTS ON ANGTS

There are two agreements between the United States and Canada which apply specifically to the Alaska Natural Gas Transportation System (ANGTS). They are the 1977 Transit Pipeline Treaty and the "Agreement on Principles" applicable to the ANGTS.

The U.S. Senate ratified a treaty between the United States and Canada concerning "transit pipelines" on August 3, 1977. This Transit Pipeline Treaty applies to the transmission by pipeline, through one country, of hydrocarbons not originating in that country, for delivery in the other country. The treaty prohibits either country from taking any measures which would impede the transmission of hydrocarbons in transit through the country. It provides that each country will facilitate the expeditious issuance of permits, licenses, and other authorizations needed for the import or export of hydrocarbons through a transit pipeline. The treaty also mandates that public authorities in both countries may not impose taxes or other monetary charges on a transit pipeline that are not placed on similar pipelines entirely within either country.

On September 20, 1977, the United States and Canada signed an "Agreement on Principles Applicable to a Northern Natural Gas Pipeline" which established the terms and conditions by which the two countries would cooperate on a joint gas pipeline system for the transportation of gas from Alaska and northern Canada. This Agreement provides for:

prompt governmental approval of necessary permits, licenses and certificates;
nondiscriminatory charges assessed in a just and reasonable manner;
expeditious and efficient construction;
sufficient capacity to meet the needs of United States and Canadian shippers;
private financing and a variable rate of return;
nondiscriminatory taxation;
procurement practices on "generally competitive" terms;
coordination and consultation between the governments and their respective regulatory authorities (the FERC and the NEB); and,
each government to take measures necessary to facilitate timely construction, consistent with their respective regulatory requirements, and to seek all required legislative authority to facilitate expeditious construction and remove any causes of delay.

We are aware of no memorandums that analyze these agreements in depth beyond what is discussed above. This material has been in briefing materials for Department of Energy officials.

Mr. **Dingell**. Mr. Chairman, I will have some suggestions at the appropriate time regarding other papers and documents that I believe would be useful to the subcommittees.

Mr. **Sharp**. Thank you. We will certainly solicit any of those documents which the Chair identifies and the Secretary has available.

The gentleman from Puerto Rico is recognized for 5 minutes, a shorter 5 minutes.

Mr. **Corrada**. I have no questions.

Mr. **Sharp**. Mr. Secretary, we appreciate your returning to answer questions. As you can appreciate, as our committee continues to hear more on the subject, we may decide we want to submit further highly technical questions in writing.

One of the arguments as to why we should put consumers at risk in this project—and they are really put at risk in two ways, one we already know under the existing system, that they will pay whether gas flows, the second is that they might have prepayment on certain segments in the event deadlines are not met—one of the arguments made to us is that well, obviously consumers will benefit.

Even though it is not as clearly identifiable a financial benefit as a dividend payment, they will benefit because they will have an alternative supply of energy or a supply of energy cheaper than other alternatives, such as imported oil.

If in fact the waiver package passes and if in fact the pipeline is built, which are two entirely separate questions, will the Administration oppose any efforts that would deprive the consumer of making any gains when this benefit begins to show up? It theoretically will as the curve drops; in other words, as the cost of the gas coming out of that pipeline gets out of the front-loaded section and into a later section.

Is it your policy to try to protect the consumer to make sure that they do get the benefit that you and others have argued will be available?

Secretary EDWARDS. Mr. Chairman, I think it is only fair to say that certainly if they have taken the risk, they should have the benefit. I cannot imagine any situation where we would try to take away their benefit at some future date.

Mr. NISKANEN. Mr. Sharp, assuming this administration is still in office in the year 2000, I will make the commitment to you that we will preserve that——

Mr. SHARP. There are a set of limits on that commitment, obviously, but it is possible to maintain that benefit if you take off the control price of gas in Alaska. Don't the producers eat up that benefit from those curves we have seen on graphs, that show the consumer will gain? Isn't that lost if in fact we take off the price of gas, the control price of gas in Alaska now? I am not talking about any other gas. I am talking about the controlled price of gas in Alaska.

Secretary EDWARDS. I am going to ask Mr. Niskanen to answer that.

Mr. NISKANEN. Mr. Sharp, in a decontrol environment it is very likely that the wellhead price of that gas in early years would be very close to zero. With the conventional pipeline tariff, as the pipeline tariff drops the wellhead price would then increase to reflect what the difference is between gas prices in the United States and the pipeline tariff.

You are going to get a different pattern of wellhead prices in a control environment than in a decontrol environment, but the value accrue to the consumers on the average over the period of time.

The consumers wouldn't necessarily get a lower price as the pipeline tariff drops, but they would get a lower price for gas if this turns out to be a viable project than if the gas were not available.

Mr. SHARP. But Mr. Niskanen, you say it could conceivably drop to zero or be lower than the control price. Is that what you are saying?

Mr. NISKANEN. In a decontrol environment, the initial wellhead price of the gas may very well be lower than in the present control environment.

Mr. SHARP. Why would the producers have any incentive to sell, pump that gas through the pipeline if under the tariff they can collect as a demand charge the costs of the pipeline equity and debt? Why would they have any incentive to sell any gas that is below those prices?

Mr. NISKANEN. They would not. Also, shippers have no incentive to sign up for that gas early on unless there is that kind of commitment to continue flow.

Mr. SHARP. But the shippers are already out here, all ready to invest their money in this project and to pay the bill. But they have no guarantee the gas will flow, do they?

Mr. NISKANEN. That is something that they would have to arrange consistent with their interests.

Mr. SHARP. I certainly hope they plan, in their bargaining, to make sure that they are going to be buying gas. I trust that question will arise in their minds when they resign up for this.

It seems an awful lot of people signed on real quick for this project. There is still the possibility, as I understand it, that all the pipeline partners in this could back out, as well as the banks being unable to come up with the financing. Is that correct?

Mr. NISKANEN. That is correct.

Mr. MARKEY. Mr. Chairman, could I be recognized just for a brief moment?

Mr. SHARP. Mr. Markey.

Mr. MARKEY. If I may just pursue one line of questioning, and that is with regard to evidentiary hearings, the responsibility the FERC will have to have open public hearings that will be evidentiary in nature. The proposed waivers would not require the formal evidentiary hearings and proceedings related to missions for public convenience and necessity, authorizing construction, or operation of any segment of the approved transportation system and would allow the FERC discretion in determining when such evidentiary hearings would be held.

It would seem to me that there isn't a banker, there isn't a businessman, there isn't any person in the business world that would accept this as a provision which they would easily abide being seen, being put into legislation, but that in this particular instance it is the ratepayer that is going to be denied the formal requirement of evidentiary procedures to be the precondition to the granting of the requests which would be made.

I would ask from the administration why formal evidentiary hearings are not made to be mandatory as a requirement to protect the public from proceedings that do not have a full and fair presentation of all, and cross-examination, of all of the evidence which should be presented before any of these waivers are permitted.

Mr. JOHNSON. Mr. Markey, as you have indicated, the waiver would permit the FERC to determine whether there was an actual need for an evidentiary hearing. I have complete confidence that should contested issues of fact really exist that require evidentiary hearing, they would provide for it.

On the other hand, there is a need to get on with the decisionmaking and prevent an otherwise viable project from being stalled due to merely formal requirements and procedures that are not necessary for true decisionmaking.

This is not a requirement that they forgo evidentiary hearings. It is simply an authority to the FERC to decide whether or not rulemaking or legislative type hearings may not be preferable to formal evidentiary ones.

Mr. MARKEY. Well, yes, but then you run into this unfortunate circumstances in which FERC under the inextricable pressure of the business interests, which are substantial in this case, in all probability, if not with some certainty, will just brush aside the interest of the ratepayer, the ratepayer here who is really now a businessman, a businessman who is making a decision as to whether he wants to make a financial commitment here who is not allowed to come in.

He was not allowed to examine documents, to cross-examine, to make the kind of presentation that will be necessary in order to insure that a prudent businessman standard is applied to this particular instance.

I have a hard time accepting the streamlined, nonparticipatory, nonratepayer, nonconsumer orientation that this bill represents because what it will surely accomplish is to set up FERC as nothing more than a rubber stamp for the requests of the private sector without full opportunity given to consumers, to ratepayers to have their case, their opportunity, their day in court to be able to cross-examine before any decision is made.

I don't understand why we are giving this waiver provision to FERC, and I don't understand why instead we don't mandate, especially given the change of circumstances, and especially in light of the holding up, the detrimental reliance that the public has been placed in from the original profferings of this venture, to the circumstance that we have right now, that we don't give them mandatorily this additional protection to insure that their scarce capital resources which if a businessman was going to be making this investment he would be demanding he be given this right to cross-examine are not as well protected.

Why can't we give them that protection? What is the problem?

Mr. JOHNSON. As I have indicated, Mr. Markey, if there is a disputed factual issue, I have every confidence that the FERC will have that factual matter determined on the record after an evidentiary hearing.

On the other hand, there is no need if there is no disputed issue of fact, to require a formal hearing before getting on with the decisionmaking.

Mr. MARKEY. The current chairman has said that he will follow the waiver and he won't do that. What relief now do we offer for the——

Mr. JOHNSON. Well, I don't know what the chairman has said, but the Commission is the one that makes the decision and would have to make it on the record that would be before it, including substantial allegations of disputed questions of fact. These things haven't yet surfaced.

Mr. MARKEY. Well, they haven't surfaced. If you don't give people an opportunity to raise questions, then what seems to be incidental does not become substantial unless an opportunity for cross-examination, unless an opportunity for a presentation is given to the opposition.

In this case, what you are saying is that although the chairman has already given that indication, although authority might have been granted, that there is no guarantee that there is in any way any interest in or likelihood that there be any real public participation in the granting of the waivers and the commitment of substantial amounts of capital?

Mr. SHARP. The time of the gentleman has expired. You may reply, if you wish.

Mr. JOHNSON. Certainly there will be ample opportunity for public participation in any proceeding the Commission holds on that. That it might not be evidentiary and formal, but rather legislative in character, does not diminish the public's right to participate.

Mr. SHARP. The gentlemen from Minnesota is recognized for 5 minutes.

Mr. VENTO. Mr. Chairman, Mr. Secretary, we appreciate your coming back today so we will have an opportunity to address some questions to you.

You have stated that waivers are necessary for borrowing the money from banks to finance the project and that the energy companies really depend on these credit sources if they are to complete the project.

Isn't it a fact that if we approve these waivers, we are allowing the pipeline franchises to, in essence, expand in value over what was initially awarded? In other words, we are really making a decision to significantly enhance the value of the franchises that was given to these companies by virtue of the waiver?

Secretary EDWARDS. Mr. Vento, in a way I guess that is true. But without this waiver there will be no pipeline, in my opinion. With the waiver, there may be a pipeline. That doesn't necessarily mean there will be a pipeline if Congress approves these waiver. All we are giving them is removing some obstacles to the private financing.

Mr. VENTO. When this particular project was approved, there was an assumption about the performance of the participants or those who received it. Are you telling us today we have to sort of tilt the balance in order to make this thing go? Did you or the administration go back and look at the feasibility of that decision, or think of coming to Congress for the different suggestions as to what direction we ought to go in terms of dealing with this?

Secretary EDWARDS. These were certain commitments made to the Canadians. In order to fulfill these commitments—these were made by the previous administration, not this one—and give an opportunity for this project to come to fruition, we submitted the waiver package.

Mr. VENTO. Do you have any dollar figure? The real question is how much money or what value of the waiver package is and how much of it will be borne by the companies that won the contract versus how much will be borne by the consumers.

Do you have any value that you have placed on that?

Secretary EDWARDS. We can answer that for the record. We do not have those broken down. However, the sponsors and the producers together are going to put into this project equity that equals 25 percent of the total and will contribute 75 percent. Of that 25 percent, the sponsors will finance 70 percent of that 25 percent and the producers 30 percent.

Now, so far as the consumers go, I don't think that we can put a figure on that because I doubt very seriously that we will ever have the pre-billing.

[The information follows:]

VALUE OF WAIVER PACKAGE

The Department has reviewed figures provided by the Office of the Federal Inspector, which are based on the sponsor's estimates, of the possible cost to residential consumers in the event of precompletion billing under the waiver. These figures are provided to the Subcommittee as part of the materials submitted for the record. The Department does not believe it is possible to set a dollar value for all the various elements of the waiver.

Mr. VENTO. I would like those figures for the record so that we can look at it. It is a little bit hard to follow. In other words, you are suggesting the administration has done a cost-benefit analysis of this in some respect, is that right?

Secretary EDWARDS. No.

Mr. VENTO. You mean they haven't done that for this particular issue? Are there some intangibles here we can't measure, or what is the problem, Mr. Secretary?

Secretary EDWARDS. Mr. Vento, I feel the details of the financing package should be done by those producers and sponsors of this project, and that it is not our place to do that.

Mr. VENTO. Excuse me, but didn't you demand that of the sponsors when they came forth and asked you for the waiver? Didn't you ask for that type of information prior to coming to the Hill for waivers in this instance?

Secretary EDWARDS. We asked for certain detailed information. Mr. Niskanen can give you more details of what he asked for since he was the lead person on the study group that did the study.

Mr. NISKANEN. We have reviewed material from sponsors and from some of the producers bearing upon the viability of this pipeline. We have not had an occasion to reproduce those studies ourselves. The material originally submitted to us by the sponsors, the viability was based upon a continued control environment, natural gas control.

We have not yet seen and we have not done ourselves a thorough, ground up economic viability study of this pipeline in a decontrol environment. But the major focus——

Mr. VENTO. Are you telling me in a backhanded way that this administration continues to support phased out decontrol? Is that what you are telling us? Are you saying something about that? I don't want to miss anything here.

Secretary EDWARDS. I would like to answer that. The answer to that is no.

Mr. VENTO. Really, then, if that is the basis for this, based on the phased decontrol—and you are saying they don't support that—it seems to knock out one of the major arguments under which the financial arrangements were made. If not, why not? Is that right, Mr. Niskanen?

Mr. **Niskanen**. The studies they submitted to us were premised upon continued controls. I don't think that study can be taken as an indication that they oppose decontrol or support——

Mr. **Vento**. No, not that the energy companies do. I could imagine that they would be very much in favor of eliminating controls on the price of natural gas in the continental United States.

That isn't what is in question. What is in question is the administration is supporting basing the request for waivers on studies that presuppose controls at the same time apparently they are supporting accelerated decontrol, although they have made no commitments along those lines.

That is putting it mildly, I think.

Mr. Chairman, I have additional questions. I don't want to hold the Secretary up. We could submit them.

Mr. **Sharp**. Fine. You could submit them. This is the second day the Secretary has been with us.

Mr. **Vento**. Just one other question, Mr. Chairman, if I might, then. I would like a more detailed answer to the question and to the contradiction I think that I have run across.

But the Canadians have a major stake in the project. Are they putting money into their segment? Are they coming in on the same basis in terms of waivers and in terms of the utilization of natural gas being transferred intra-Canada, or inter-Canada?

Are they coming in on the same basis that U.S. consumers would be in terms of putting money up front, Mr. Secretary?

Secretary **Edwards**. Mr. Vento, this is a little different because we are transporting Alaska natural gas across their territory. They do have some benefit from it. The labor intensive nature of laying the pipeline, the production of some of the pipe that will be used in the Canadian segment, the interest on the money that the Canadian banks will offer to build the pipeline, that type of thing is certainly an advantage to Canada.

But this is an American product being transported through their territory down to the lower 48. There are no plans at this time to use this pipeline to transport this gas to Canada. There is also a benefit to the Canadians that they are at the present time taking gas from the Calgary area and transporting it down through the western leg and soon through the eastern leg. They are getting the benefit of the balance of payments of the sale of gas from Canada to the United States.

Mr. **Vento**. The fact of the matter is that it could be used in different ways than what we have as the initial plan. You said there are no plans. So the fact of the matter is we are not asking or requesting any type of similar support from the Canadians even for whatever the miniscule use of the pipeline might be for their particular purposes. Is that correct?

The answer to my question basically is no because of a variety of characterizations and assumptions the administration has tended to make in this instance.

Secretary **Edwards**. That is correct.

Mr. **Vento**. Thank you.

Mr. **Sharp**. The time of the gentleman has expired.

Mr. Secretary, we appreciate your cooperation. We may have, as is obvious, additional questions we would like answered in writing.

Secretary **Edwards**. Mr. Chairman, we will be glad to answer them and submit them to you.

Mr. **Sharp**. Thank you very much. We appreciate your returning today.

Secretary **Edwards**. Thank you.

Mr. **Sharp**. Our first panel is the two distinguished leaders of the Steel Caucus in the House of Representatives and a representative of the Bethlehem Steel Corp.

We will go ahead and have our next panel, the two State witnesses.

Then we will have in the afternoon, the third panel of gas users and that will be probably at 2 o'clock.

STATEMENTS OF HON. JOSEPH M. GAYDOS, CHAIRMAN, AND HON. ADAM BENJAMIN, JR., EXECUTIVE COMMITTEE CHAIRMAN, CONGRESSIONAL STEEL CAUCUS, HOUSE OF REPRESENTATIVES; AND BRUCE E. DAVIS, ASSISTANT VICE PRESIDENT, BETHLEHEM STEEL CORP.

Mr. **Gaydos**. I wish to thank, on behalf of the Steel Caucus, the chairman for holding these hearings and also scheduling the Steel Caucus to give these brief remarks.

I want the committee to know our remarks are limited primarily to the "Buy American steel" aspect of this issue and purposely we have avoided any reference, direct or indirect, to the package that we have had referred to us and which the past testimony pertained to.

The Steel Caucus hasn't had a passing interest in this matter. We have been, as a group, actively participating in, cooperating with the committee in most respects from the inception of this problem and in the form of a resolution back in 1977.

The progressive complaints we have had, as included in several communications to the Chief Executive, had to do with the interpretation of the "agreement in principles," how it was being applied, and then the last problem of course, was the waiver as it pertains to the difference of duties between Canadian and American steel.

So with the permission of the chairman, I would like to give a relatively brief statement on behalf of the caucus.

Mr. **Sharp**. Fine.

Mr. **Gaydos**. Mr. Chairman, I want to begin by expressing the appreciation of the Steel Caucus—and myself as chairman, and Mr. Benjamin—for the opportunity to have our say and to put in our $43 billion worth in regard to the Alcan natural gas pipeline.

We should go ahead with the pipeline.

The consideration you give the pipeline and the waivers before you should not have you looking at this project as an isolated piece of business.

I suggest that it is one of the weights that, when placed on the scale with all the others, will determine whether the workers and basic industries of the United States rise or fall.

The attitudes we show and use in building the remaining portions of the pipeline, as well as the attitudes we have used up to this point, affect the whole of our industry and all of our American workers.

This pipeline is as much a matter of trade and market accessibility as it is of energy.

So far, we have honored classic economic theories of openness, and these theories are giving our economy a truly classic look.

The classic ruins of Pompeii come quickly to mind in this context. In both cases, an outside force dumped devastation on people who were thriving. In the case of the ancient city, it was volcanic ash; in our case, it looks like it is steel.

The four main segments of this pipeline will have required almost 3 million tons of steel when it is completed. And nothing that big occurs in a vacuum when the economy of the free world is as tight as it is today.

No steel industry in the world is enjoying good times.

In the European Economic Community, steelworker employment is down 20 percent since 1976.

Steel policy has been one of Europe's biggest problems, and they are trying to end cutthroat competition and revitalize their industry.

In Japan, according to the June 23 Japan Economic Journal, the major steelmakers planned to follow reduced production schedules into this fall.

The Journal noted that despite sluggish domestic demand, the Japanese were counting on increased exports to the American market. On our side of this, we find a surge of imports that now could account for a 25-percent share of the American market.

Imports from Japan as of August of this year have totalled 4 million tons.

Imports from the European Economic Community have totalled 3.7 million tons.

And imports from our Canadian neighbors so far are 2.2 million tons.

The total from our main trading partners—about 10 million tons.

That amounts to about 50,000 steelworkers out of work in the United States, using the generally accepted scale that 1 million tons of imports equals 5,000 jobs.

To refine the focus somewhat, let's apply the world situation to the pipeline, which will run 4,800 miles from Alaska, through Canada and into two parts of the United States.

More to the point, let's take a look at the 1,117-mile eastern leg that will end in Ohio.

U.S. steelworkers got about 60 percent of the work.

The 139,000-ton order won by Kaiser Steel, on competitive bids, probably will keep that firm and its workers going since there was a danger of failure.

The Japanese steelmakers have 20.6 percent of the job.

And Italian steelmakers have 19.4 percent.

Together they will make 40 percent of the pipe used in the eastern leg.

Is this a demonstration of cause and effect?

Does sluggish domestic demand spur foreign steelmakers to seek orders at cost—or perhaps below—in the biggest, most open market in the world, this country?

Well, the Commerce Department will begin monitoring and this has been at the urging of the caucus, imports of X-70 pipeline pipe under the trigger price mechanism in the first quarter of 1982.

Further, one of our best trading "partners"—and I put the word "partners" in quotes to indicate some skepticism—is also our partner in the pipeline.

Our good neighbors, the Canadians, who this year shipped in the equivalent of 10,000 lost American steelworking jobs, have already shut us out of any participation in 42 percent of the pipeline.

They shut us out of the Canadian portion. This did not happen because their pipe is better or their workers more efficient.

It happened as a matter of, as we see it, deliberate, hardheaded Government policy.

Our nations agreed in 1977 to build the pipeline on "generally competitive" and I put those words in quotes—terms.

The words "generally competitive" come right out of the agreement.

First, they decided the major portion of the pipeline in Canada would be constructed of 56-inch pipe.

Along with the technical reasons put forward to justify this, there is also the very compelling fact that two Canadian firms are among the only makers of 56-inch pipe in the world. These firms got the work. If others participate, it will be only to the extent the Canadians can't deliver.

Nevertheless, a tolerant mind could say, "Well, that was a judgment call."

But step 2 showed it to be what it was—the unilateral enforcement of a buy-Canadian policy without ever calling it that or even mentioning the word "protectionist."

Step 2 had to do with smaller diameter pipe which American steelmakers can turn out in high quantity and quality.

Though asked repeatedly, our Canadian neighbors refused to lower or waive the existing 15-percent duty—that is, a Canadian duty—they place on such pipe from the United States.

This charge obviously made us uncompetitive.

By the way, our duty on Canadian pipe is 2.2 percent.

So over the course of 1977 and 1978, the Canadian Government unilaterally modified the agreement to build the pipeline on generally competitive terms to an agreement to build it on "generally competitive terms" that maximized Canadian participation.

They have a different definition of competition.

We thought it was on the producer level.

They knew it was on the Government level.

So now we get to my principal point, Mr. Chairman.

Only one portion of the Alcan pipeline remains up for grabs—the 731-mile segment of the Northwest Alaska Co. from the source of the natural gas at Prudhoe Bay to the Canadian border.

It will be built with 48-inch pipe, which has been judged technically and scientifically superior for the job, even though it will feed into the 56-inch Canadian line.

It will require 735,000 tons of steel, principally in pipe.

That tonnage is roughly 96,000 segments of 40-foot pipe weighing 6 tons each that will come off U-presses and O-presses at the rate of 110 pieces a shift.

There is an American manufacturer that can handle the job.

All specifications for Arctic-grade pipe can be met, and of this I am assured, and the caucus has been assured.

They say those 110 pieces a shift will represent as many as 1,500 jobs in making and transporting the pipe.

So it makes a lot of sense—particularly in light of world steel conditions and what already has been done in the name of generally competitive terms—to review our concept of competition in light of the classic results of the classic policies which only we in this country honor.

And it is time to guard our house against the kind of decay caused by predatory raids before it becomes truly a fine set of ruins like those of Pompeii, for following civilizations to wonder over.

It is time our trading partners understood that free trade means reciprocal free trade, and this committee can be the first to post the notice.

This last segment should be built with American-made steel, members of the committee.

And a buy-American provision should be mandatory if the pipeline later requires any financial guarantees or direct participation by the Government of the United States.

Building this pipeline as quickly as possible is an exercise in foresight.

We will need the natural gas, and the reserve is a massive one.

As a matter of personal opinion, and not of caucus position, I do not think consumers in the United States should be required to capitalize the pipeline before they get the benefit.

Rates should not be adjusted until the gas is coming into our plants and homes.

As for the other waivers, I would not offer the committee testimony on matters so far outside my area of immediate experience and direct concern.

I am certain you will do the things that are in the best interest of the people you represent.

Thank you for hearing the Steel Caucus.

I take this opportunity to refer to my colleague, Mr. Benjamin.

STATEMENT OF HON. ADAM BENJAMIN, JR.

Mr. **Benjamin**. I would fully subscribe to the statement rendered by my colleague, Mr. Gaydos, chairman of the Steel Caucus. My colleague is extremely fair and statesmanlike in his presentation. Personally, I would not grant one waiver or recommend the granting of a waiver unless a buy-American provision was placed as a condition under which the waiver would be granted.

Mr. Chairman, I recall your predecessor, Mr. Dingell, who, as chairman of the Energy and Power Subcommittee, entered into a colloquy on the floor with Mr. Udall, chairman of Interior, to discuss this matter of fairness and where the steel would be made. They concluded at the time that the bidding would be open and competitive. Further, that the U.S. Government would stand behind open competion.

The chairman also asserted that the two committees, Interior and Energy and Commerce, would review the matter for the Congress and for all interested parties.

Although a subsequent colloquy between these two distinguished gentlemen reemphasized their posture, it did not deter the Canadians from changing the order so that only Canadians could bid and to place a 15-percent tariff on American products so that the Americans were effectively squeezed out of any competitive bidding.

By placing a buy-American preference into the law now, you would allow each country about one-half of the participation in the pipeline.

This would be more than fair, considering the relative size and relative production capacity. Consequently, I would proceed further than my colleague. I would not wait for public participation; I would say before the granting of the first waiver that you must effectively have the Canadians, as well as all other producers in the world of steel, subscribe to a buy-American preference.

After all, the last leg has 735,000 tons of steel requirement that is in Alaska. As far as I know, it still is one of the States of this country.

Thank you, Mr. Chairman.

Mr. SHARP. Thank you.

Mr. GAYDOS. Mr. Chairman, on behalf of the caucus, I want to cite the conclusion of the Executive Committee at its last meeting. I have neglected to convey to this committee and its chairman, and all the members, the sincere gratitude of the members of the Steel Caucus for the past cooperation of this committee, and this committee should know that the Steel Caucus remains ready and willing to support many of your positions on the floor of the House.

Mr. SHARP. I thank the gentleman.

Mr. Davis.

STATEMENT OF BRUCE E. DAVIS

Mr. DAVIS. Mr. Chairman, I am assistant vice president of Bethlehem Steel, but I am here appearing in behalf of the member companies of the American Iron & Steel Institute.

First, we are delighted to be associated again with the chairman of the House Steel Caucus and Chairman Benjamin in a joint effort in behalf of the American steel industry and our 500,000 men and women.

I have a prepared statement which I have provided to the committee and I will ask it be entered for the record. I would like to take just 3 minutes to summarize.

Mr. SHARP. We appreciate that. Without objection, it will be made a part of the record.

Mr. DAVIS. First, I would like to look back for a moment. I heard the previous witnesses talk about Canadian commitments, American commitments, and as far as the American iron and steel industry is concerned and our workers, to date, the Alcan project can best be characterized as a series of broken commitments and circumventions by the Canadian Government of the September 1977 agreement.

Both Congressman Gaydos and Chairman Benjamin touched upon that, and the specifics in support of that serious charge are contained in some detail in my statement, including the involvement of Chairman Dingell in an effort to get the Canadian Government in 1978 and 1979, to honor its commitments in the September 1977 agreement.

I would now like to look forward. Beginning at page 9, I talk about observations regarding procurement of the Alaskan portion of the Alcan project. I would second the positions stated by both Chairman Gaydos and Chairman Benjamin to this subcommittee.

The 48-inch diameter main pipeline has been touched upon. And an important part of the Alcan Alaskan portion is the condition and cleaning plant which has been characterized as either costing somewhere between $3 billion and $6 billion. No one is quite sure.

What we do know is that if it is to be constructed, it will require a substantial amount of steel, steel of the types, grades, sizes that can and should be furnished by American workers in American steel mills.

If Mr. McMillian's testimony is to be taken at its word, and I believe it should, he talks about the reasons why the waiver package should be approved.

He talks about making maximum use of American materials because Alcan will thus create jobs and orders for American business.

If we look at what has been the experience of the Canadian portion of the line, Mr. Chairman, these promises will not be realized.

Therefore, we are delighted to second the positions advanced by my colleagues from the Congress.

Thank you very much.

[Testimony resumes on 746.]

[Mr. Davis' prepared statement and attachments follow:]

Prepared Statement
of
Bruce E. Davis
Assistant Vice President, Public Affairs
Bethlehem Steel Corporation
In behalf of
American Iron and Steel Institute

1. Introduction

Mr. Chairman, I am Bruce E. Davis, Assistant Vice President, Public Affairs, Bethlehem Steel Corporation. This Statement is submitted in behalf of the American Iron and Steel Institute ("AISI").

The Alaska Natural Gas Transportation System ("ANGTS") has received support to date from two presidents and two Congresses. For example, President Reagan's October 15, 1981 submittal of the proposed waiver package which is the subject of these hearings states in part:

> "[This project] is also a symbol of U.S.-Canadian ability to work together cooperatively in the energy area for the benefit of both countries and peoples."

We respectfully disagree with this characterization of ANGTS.

Insofar as the nearly 500,000 men and women of our nation's basic steel industry are concerned, ANGTS to date can be characterized as a series of broken commitments and circumvention by the Canadian Government of both the letter and the spirit of Congressional action.

II. United States - Canadian Agreement

In September 1977, the Canadian and United States Governments entered into an Agreement "to ensure the proper management and timely completion of the /ANGTS project/." Section 7 of the Agreement requires that each Government "endeavor to ensure that the supply of goods...to the Pipeline project will be on generally competitive terms, (including) price, reliability, ...and delivery schedules." (Emphasis added.) However, the Canadian Government, despite Section 7 of the Agreement, and despite the efforts by Congress and two Secretaries of State, sought to ensure that all the large diameter steel pipe for the Canadian portion of ANGTS would be secured from Canadian sources...and the Canadian Government succeeded!

III. Potential For American Participation in ANGTS Steel Requirements

The Canadian portion of the ANGTS required approximately 1.4 million metric tons of large diameter gas transmission steel pipes and accessories:

Pipe Diameters	Quantities (metric tons)	Available Canadian and American Sources
56"	860,000	Canadian only
48"	179,000	Canadian and United States Steel Corporation
42"	202,000	Canadian, Armco, Bethlehem, Kaiser and United States Steel
36"	102,000	Canadian, Armco, Bethlehem, Kaiser and United States Steel

When the ANGTS pipe requirements were advertised for bids, the American steel industry, based upon Section 7 of the September 1977 Agreement between Canada and the United States, was of the opinion that construction of ANGTS would truly benefit both the American and Canadian steel industry. However, this expectation was killed by subsequent Canadian action.

IV. Canadian Action to Circumvent Section 7 of September 1977 Agreement

A. Canadian National Energy Board

To undertake a major energy investment project in Canada, such as ANGTS, requires a certificate of public convenience and necessity from the Canadian National Energy Board with respect to construction and operation.[1] The Board is specifically authorized under Canadian law to regard Canadian content as a relevant consideration to awarding a certificate.[2] Applicants are routinely requested to provide information about their procurement plans.[3] The degree of Canadian content bears on the award of the certificate and may well become the subject of a certificate condition.

The controlling nature of this certificate process is well illustrated by the procurement for the Canadian portion of the Alaska Highway Natural Gas Pipeline.

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[1] National Energy Board Act, Can. Rev. Stat. 1970, c. N-6, s. 44.

[2] Id. & National Energy Board Rules of Practice and Procedure, C.R.C. 1978, c. 1057, s. 5 & Sch. Pt. I, ¶ 15 (gas pipeline), Pt. II, ¶ 13 (oil pipeline), Part III, ¶ 10 (international powerlines). A Treasury Board directive also requires that the government ensure that the "optimum use of Canadian labor, goods and services" be taken into account in the award of all certificates and licenses, T.B. Circular 1978-14 (T.B. 755515), dated March 29, 1978, ¶ 6(d).

[3] See, e.g., Foothills Group of Companies, Alaska Highway Gas Pipeline Project Procurement Program (April, 1980).

Three Canadian firms applied to the National Energy Board for a certificate to construct the pipeline. Among other things, the Board in its evaluation carefully compared the level of Canadian content for each proposal. The procurement plans of Foothills (Yukon) contained 85 percent Canadian content, the highest among the applicants.[4] At stake were hundreds of millions of dollars in procurement of steel pipe, connectors and pumps.

In awarding the certificate to Foothills to construct the Canadian portion of ANGTS, the Board made it an explicit condition that at least 85 percent Canadian be achieved in purchases for the construction of the pipeline.[5] In this way the Board, rather than the marketplace, virtually eliminated American firms from furnishing materials for the pipeline.

B. Northern Tier Pipeline Act of 1978

The deliberate action by the Canadian Natural Energy Board, with the endorsement of the Canadian Government, to exclude American steel firms from participation in the Canadian portion of ANGTS was consistent with action taken in 1978 by the Canadian Parliament.

The Canadian Parliament, after the Government entered into the September 1977 Agreement with the United States, enacted the Northern Tier Pipeline Act of 1978. This Act required that the prime contractor for the ANGTS project submit to the Canadian Government a detailed plan "designed to ensure the maximum possible use of Canadian labour in planning, construction, and operation of the Pipeline." The Act went on to require that "the level of Canadian content (be) maximized so far as practicable" and that maximum advantage be taken "to establish and expand suppliers in Canada" and "to foster research, development, and technological activities in Canada." Can. Stat., 1977-78, c. 20, Sch. III, ss. 9, 10(a).

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[4] 2 National Energy Board, Reasons for Decision Northern Pipelines (June, 1977), at 4-240-41.

[5] 1 id. 1-183. See also Northern Pipeline Act, Can. Stat. 1977-78, c. 20, s. 21 & Sch. III, cl. 10.

V. Congressional Protests

A. Congressional Steel Caucus

In September 1978, AISI called these Canadian actions to the attention of certain members of Congress, including the leadership of the Congressional Steel Caucus.

By letter dated September 29, 1978, the Chairman of the Congressional Steel Caucus wrote Secretary of State Vance to "express our concern about the domestic steel industry being placed at a competitive disadvantage with respect to participating in the construction of the [ANGTS project] -- 75% of which is to be financed from U.S. sources."

B. Chairman John Dingell

On February 6, 1979 Chairman John Dingell wrote Secretary Vance concerning the Canadian failure to implement faithfully and fully the September 1977 Agreement between the two Governments.

On May 16, 1979 the State Department responded to Chairman Dingell's letter. Assistant Secretary Bennet's letter concluded:

> "We are confident that Canada's interest in mutual access to the bidding process will support our efforts to reach an early agreement both on these procedures and on the availablity of adequate information to permit you to assure your colleagues that the procurement process does indeed meet the generally competitive terms of the US-Canadian Agreement." (Emphasis added.)

Attached to Mr. Bennet's letter was a summary of consultations between U.S. and Canadian officials. This summary demonstrates the steadfast unwillingness of the Canadian Government to respect the letter and the spirit of the September 1977 Agreement.

We believe this State Department correspondence and summary of consultations confirms so convincingly the validity of our complaints that we have attached a copy of these documents as Attachement A to this Statement.

VI. Procurement of Pipe From Only Canadian Supplies

The Wall Street Journal of December 20, 1978 (Attachment B) advised that the Canadian Government had authorized Foothills (Yukon) to contract with two Canadian pipe producers --- Steel Company of Canada and Interprovincial Steel Pipe --- for the furnishing "OF ALL THE 1.5 MILLION TONS OF PIPE REQUIRED FOR THE CANADIAN PART OF THE ALASKA HIGHWAY PROJECT."

VII. Oversight Hearings, October 15, 16, 1979; Subcommittee on Oversight and Investigations of the House Committee on Interior and Insular Affairs

The above recitation of the ways and means used to insure that only Canadian large diameter pipe would be used in the Canadian portion of ANGTS should be familiar to many participants in these hearings. The October 1979 oversight hearings cited above focused in part on this subject:

> "Two events occurring in February 1978 focused attention on Canadian procurement policies. First, during the debate in the Canadian House of Commons on the pipeline enabling legislation, officials stopped just short of giving legal status to the Foothills' target of 90

percent "Canadian Content." Deputy Prime Minister Allan J. MacEachen was quoted as saying that the Canadian government would assist the sponsors in reaching that goal. The second event was Canada's announcement on February 20, 1978, that it had selected a 56-inch, 1080 psig pipeline system design for the 1,085 mile segment between Whitehorse, Yukon, and Caroline Junction, Alberta. United States officials had informed their Canadian counterparts that they preferred a 48-inch system because they felt that it would provide the lowest cost of service, a cost that the American gas consumer will ultimately have to assume. Deputy Prime Minister MacEachen was quoted as saying that a key reason his government prefers the 56-inch version is that the large size pipe is currently made by two Canadian companies but isn't made in the United States." (Emphasis added.)[6]

VIII. Conclusions We Have Drawn From Pipe Procurements For Canadian Portion of ANGTS

A. The nationalistic actions taken by the Canadian Government were in violation of the letter and the spirit of the September 1977 Agreement.

B. "Quiet diplomacy" failed to persuade the Canadian Government to back away from its "Canada only" procurement program for the Canadian portion of ANGTS.

6/ Page 155, Appendix to Oversight Hearings.

C. Congress, the Reagan Administration and the American public should recognize that recent Canadian Government procurements have traditionally discriminated against foreign goods and suppliers.[7]

D. Congress and the Reagan Administration must increase their scrutiny of our international trade commitments to insure that our trading partners fully and faithfully honor their commitments.

E. We must insure that our trading partners recognize that trade is a two-way street.

F. International trade agreements and commitments are too important to be left solely to our trade negotiators. Constant and careful attention by Congress to trade is a "must."

In short, Mr. Chairman, Congress and this Administration must, in cooperation with labor and management, strictly enforce United States trade laws and international agreements. Specifically, our antidumping, countervailing duty, and similar structures are designed to neutralize or eliminate trade distortive practices which injure U.S. industry and agriculture. We regard these laws as essential to maintaining political support for an open and fair trading system. An essential part of this system is insistence that our trading partners live up to the spirit and the letter of international trade agreements.

7/ Sept. 1981 study, "Discrimination Against Foreign Suppliers in Canadian Government Procurement," prepared for AISI by Alan Wm. Wolff, Esq. and W. Clark McFadden, II, Esq. /Copy of Executive Summary is Attachment C to this Statement./

IX. Observations Regarding Procurement for the Alaskan Portion of ANGTS

Up to this point, our statement has focused on past history --- the fact that all the large diameter steel pipe for the Canadian portion of ANGTS will be furnished by Canadian sources. What about our participation in the Alaska portion of ANGTS?

A. Main pipeline -- 48" Diameter

Last Tuesday, the Chairman of Alaskan Northwest Natural Gas Transportation Company ("Northwest") testified at these hearings that "the Alaskan pipeline segment of the ANGTS would be built with 48-inch diameter pipe." If this decision remains unchanged, only one American pipe producer, United States Steel Corporation, has the capability to produce gas transmission pipe of this diameter.

We would hope that these hearings will encourage Northwest to maximize procurement of 48" pipe produced by U.S. Steel for the main Alaskan pipeline. In making this request, we are merely giving practical effect to the October 20, 1981 testimony of Northwest's Chairman:

> "The ANGTS will create jobs for U.S. workers and orders for U.S. businesses to provide materials, equipment and services in connection with the construction...of the pipeline....

If, however, some portion of the Alaskan main pipeline system were redesigned to permit 42" diameter pipe, at least two and perhaps three additional American pipe producers could compete for these requirements.

B. Prudhoe Bay Gas Conditioning Plant

According to Mr. McMillian, Northwest Chairman, this conditioning facility, and related facilities, will cost approximately $3.6 billion (in 1980 dollars). The conditioning facility, the 288-bed residential facility, a cooling unit, a river water intake station, access roads and miscellaneous pipelines will require the procurement of substantial quantities of steel products.

We recommend that your action on the waiver package be conditioned upon assurances by Northwest that it utilize steel products of American origin to the maximum extent possible in the construction of the conditioning plant and related facilities.

X. Why Insist on Maximum Use of American Supplies & Equipment?

First, the potential for cost overruns, given the magnitude of the Alaskan portion of the ANGTS project, the remoteness of construction sites, and abnormal weather, is substantial. Cost overruns, if they occur, will be borne by the consumer, i.e., American taxpayers.

Our experience with monumental construction projects suggests that the use of numerous American suppliers will likely minimize construction delays and will maximize timely delivery of needed supplies and equipment.

Second, to insist that Northwest make maximum use of American supplies and equipment is merely to take Mr. McMillian at his word:

> "The ANGTS will create jobs...and orders for U.S. businesses...." (page 51, Oct. 20, 1981 Testimony).

Third, the American steel industry is in a "crisis" situation brought about by unfair imports. The operating rate is falling into the 60s and may go to the 50s. Steelworker layoffs are increasing weekly. Our whole effort to revitalize and modernize the domestic steel indsutry is in jeopardy. Future capital investments in the industry, as well as those already announced, are being undermined by surges of imported steel. This situation has been brought on because certain foreign governments have encouraged their steel industires to ship dumped or subsidized steel into the U.S. markets in complete disregard of the Trigger Price Mechanism. Your insistence that the Alaska portion of ANGTS be constructed with American goods produced by American workers will help restore needed vitality to our industry in a time of need.

ATTACHMENT A

DEPARTMENT OF STATE
Washington, D.C. 20520

RECEIVED
MAY 1 [illegible] 1979
SUBCOMMITTEE ON ENERGY & POWER

FILE

MAY 16 1979

Dear Mr. Dingell:

I am pleased to supply further information in response to your letter to Secretary Vance of February 6, concerning your Subcommittee's interest in the mechanisms and procedures established to enforce the competitive requirements of section 7 of the US-Canadian Agreement on Principles Applicable to a Northern Natural Gas Pipeline. I am sending a similar response to Chairman Eckhardt.

In your joint letter you recalled that the Department of State, in testimony before your Committee, undertook to monitor Canadian implementation of the Agreement in order to ensure compliance with the provisions of section 7--that the supply of goods and services to the pipeline project be on generally competitive terms.

In support of this undertaking the Department of State, in conjunction with the Federal Energy Regulatory Commission (FERC) and its Alaskan Gas Project Office, has been actively engaged in recent months in an intensive series of contacts with Canadian authorities. The purpose of these contacts has been to develop a workable set of procedures acceptable to both sides to assure fair and open procurement on all segments of the pipeline project.

As you will see from the enclosed summary of US-Canadian consultations, State and FERC have reviewed the matter with Canadian authorities in considerable detail, most recently in consultations in Ottawa under paragraph 8 of the Agreement. While we have not yet fully worked out all of the necessary procedures and mechanisms to ensure mutually open procurement, we

The Honorable
John D. Dingell,
Chairman, Subcommittee on
Energy and Power,
House of Representatives.

can demonstrate useful progress in these consultations in identifying the essential characteristics of those procedures and safeguards.

You will also note from the detailed summary that the Canadians agreed on April 5 to develop a procurement procedure that will include: broad access to the bidding process, including review of the bidders list by competent U.S. officials; an identification procedure for selecting firms that meet generally competitive terms, and from this group, the firms that can provide maximum industrial benefit to Canada; and a control process reviewed by the U.S. by which follow-through on procurement principles would be verified. We expect an early response from the Canadians.

I can assure you that we, and the other agencies working with us in monitoring Canadian practice in this matter, will scrutinize these Canadian proposals closely with a view to ensuring maximum possible openness in the procurement process consistent with the Agreement, and with U.S. and Canadian implementing legislation.

We are confident that Canada's interest in mutual access to the bidding process will support our efforts to reach an early agreement both on these procedures and on the availability of adequate information to permit you to assure your colleagues that the procurement process does indeed meet the generally competitive terms of the US-Canadian Agreement.

I hope this information and the enclosed summary are responsive to your concerns regarding the substance and frequency of US-Canadian consultations on this matter.

Sincerely,

Douglas J. Bennet

Douglas J. Bennet, Jr.
Assistant Secretary for
Congressional Relations

Enclosure:

As stated

SUMMARY OF U.S./CANADIAN CONSULTATIONS ON ALASKAN GAS PIPELINE PROCUREMENT ISSUES

May, 1978: U.S. MTN Delegation requested the elimination of Canada's 15 percent duty on line pipe.

June, 1978: U.S. MTN Delegation reiterated request for elimination of Canada's line pipe duty as a high priority MTN request.

June 25, 1978: Embassy Ottawa informed Northern Pipleline Agency of USG concerns regarding competitive bidding and access by prospective bidders to timely information on pipe supply contracts, making the following points:

-- U.S. firms should not be arbitrarily excluded from providing goods and services for Canadian portions of the project and vice versa;

-- U.S. and offshore suppliers should not be put at a disadvantage through the wording of the line pipe bidding specifications;

-- The U.S. interest that the evaluation of line pipe bids be consistent with the obligation to ensure that procurement be on generally competitive terms;

-- The U.S. concern that offshore as well as Canadian suppliers be considered for 56-inch pipe;

-- U.S. recognition that reciprocal access is required and U.S. readiness to discuss establishing procedures to ensure that Canadian firms have an equal opportunity to bid on work on the U.S. segments of the project;

-- U.S. request for government-to-government consultations in the context of paragraphs 7 and 8 of the Agreement.

August 2, 1978: Canadian Embassy, Washington, informed State and FERC/AGPO of list of bidders to be invited by Foothills Company to bid on pipe supply for Canadian segment. List included major U.S. steel firms: U.S. Steel, Kaiser, Bethlehem, and Armco.

August 31, 1978: Embassy Ottawa request harmonization of U.S. and Canadian tariffs on steel line pipe for Alaskan Gas Pipeline Project. The U.S. request related only to line pipe but was made without prejudice to possible future requests of a similar nature on other items. The U.S. recognized that the lower tariffs it sought would be available to other countries with which Canada has most-favored-nation trade agreements.

The Northern Pipeline Agency said it would consult with concerned GOC agencies, especially the Department of Finance, which administers Canada's tariff code.

September 15, 1978: Embassy Ottawa again raised the issue of the Canadian tariff on steel line pipe with the Northern Pipeline Agency, urging its early harmonization with the U.S. rate.

September 28, 1978: Embassy Ottawa pressed the U.S. request for tariff harmonization on line pipe with Finance Ministry noting that because of the 56-inch pipe selection, U.S. producers would be bidding on only one-third of the 1.5 million tons of pipe required for the Canadian section of the pipeline, and that Canadian steel producers already possessed a substantial competitive advantage due to favorable Canadian currency exchange rates and lower freight costs.

The Canadian Government responded that it would not suspend tariffs for the Alaskan Highway Gas Pipeline.

October, 1978: U.S. MTN Delegation reminded Canadian MTN Delegation of the U.S. request and emphasized the link to the pipeline bidding process.

October 12, 1978: State and FERC held formal consultations in Ottawa to express U.S. concern regarding the emerging pattern of Canadian implementation of the agreement on principles with respect to procurement issues. The U.S. side argued that guidelines should be developed to ensure maximum transparency in the bidding process so that all interested firms could participate, and to determine whether "generally competitive" practices have been observed. The Canadians agreed to consider the U.S. guidelines and our request to review Foothills line pipe bidding procedure. Canadian MTN Delegation was also authorized to discuss steel pipe tariff question in the context of the MTN.

Early November, 1978: Embassy Ottawa and U.S. MTN Delegation, Geneva, again raised the issue of pipe tariff reduction on an urgent basis, stressing the U.S. desire for a reduction in the Canadian duty on line pipe.

November 13, 1978: The Canadian MTN Delegation notified the U.S. MTN Delegation that the Canadian Government would consider advance implementation of the current Canadian MTN formula offer under the terms of the MTN.

November 22. 1978: Secretary Vance met with GOC ministers on trade, energy, and other economic issues in Ottawa. He expressed continued U.S. concern with the procurement policies of GOC and Foothills. The GOC stressed its commitment to procure project materials and services on generally competitive terms while maximizing industrial benefits to Canada. The U.S. side said it saw no inherent conflict between maximizing industrial benefits to Canada and generally competitive procurement actions. Through widely publicized bidding schedules and project specifications, and assuring full reciprocity on both sides of the border, USG believed both goals could be met. U.S. interest in maximum transparency is directed at assuring U.S. business an opportunity to participate in the project, but, more importantly, at keeping project costs down in order to bring home Alaskan gas at the lowest cost to the U.S. consumer.

December 1, 1978: U.S. MTN Delegation submitted formal request for substantial and immediate tariff reductions on major pipeline components such as pumps, turbines, valves, and fittings. Canadian MTN Delegation took U.S. request under advisement.

December 8-9, 1978: Secretary Schlesinger met in Ottawa with senior Canadian ministers to discuss a range of energy matters, including the pipeline project. The Canadian side indicated that Foothills was developing a draft procurement plan which balanced the dual objectives of generally competitive procurement and maximization of Canadian content. The Canadians expressed general concern that whatever process might be agreed for maximizing transparency not interfere with standard pipeline construction practices. The U.S. side reiterated the importance the USG placed on reaching agreed procedure for achieving transparency, i.e., consultations before bids are let. The U.S. side indicated that we would require some means for assuring competitiveness and transparency of procedures in line pipe bidding to demonstrate fairness in line pipe procurement.

Canadian Deputy Prime Minister MacEachen commented to Secretary Schlesinger on the results of the pipe bidding, noting that Canadian suppliers came in with the lowest bids, and that U.S. and European bidders were not competitive. One Japanese bidder was low enough to qualify as a contingency supplier.

The U.S. side also stressed the importance of the recent U.S. request for tariff cuts on other pipeline components and urged favorable consideration in the context of the MTN. The Canadians replied that the U.S. request would be examined in light of overall U.S.-Canadian balance in the final MTN package. Canada subsequently agreed to reduce many of these tariffs by the "formula" amount of about 40 percent.

December 19, 1978: GOC authorized Foothills Pipeline (YUKON) LTD. to open negotiations with two Canadian steel firms, STELCO and IPSCO, on contracts to supply steel pipe for the Canadian segment of the project. The official announcement cited Foothills' evaluation of all the bids submitted, including three from U.S. firms, and concluded: "IPSO and STELCO have quoted the lowest prices of the North American bidders and are the only ones at present technically capable of supplying the required line pipe. They also have the potential to provide the maximum benefit to Canada."

January 18, 1979: Embassy Ottawa reiterated U.S. concerns on procurement and on implementation of procedures to provide maximum transparency in the procurement process to ensure that "generally competitive terms" are seen to be met. Consultations under paragraphs 7 and 8 were requested.

The Canadians replied that they were indeed sensitive to U.S. concerns but that under Canadian Law implementing the Agreement on Principles (Northern Pipeline Act), Foothills is required to develop detailed procedures to ensure maximization of Canadian industrial benefits within generally competitive terms. The Canadians stressed the existing incentives for Foothills to procure at least cost under the incentive rate of return formula.

Consultations were agreed to, but the date was subsequently deferred, at U.S. request, pending further discussions regarding the regulatory dimension of the procurement problem. FERC and the National Energy Board undertook a series of regulatory consultations in February and March under paragraph 9 of the Agreement on Principles.

April 5, 1979: A joint State/FERC Delegation traveled to Ottawa to consult further concerning procedures to ensure generally competitive terms and to discuss arrangements for USG access to information concerning the line pipe bids. The Canadian side expressed its intention to consult closely with the USG under the provisions of paragraph 7B regarding procurement of all major contract items and asked what kinds of information USG would want to result from these consultations. The U.S. team said that USG would need to know:

1) Whether generally competitive criteria, including price and reliability of supply, were applied;
2) The basis of the evaluation of "benefits to Canada".

3 days after Bethlehem meeting w/ FERC & State representatives

Both sides agreed that procurement of minor items would be done under normal commercial practice. Publication of the winning bid at the conclusion of the procurement process would assure adherence to generally competitive procurement terms and transparency.

The Canadians said they would review the U.S. team's suggestions, consult with Foothills, develop a set of guidelines for consultations under paragraph 7B of the Agreement, and submit them to the USG for comment at an early date. Conceptually, the Canadian procurement process is likely to include the following elements:

-- Broad access to the bidding process: Qualified U.S. authorities will have a chance to review the bidders list to ensure that all interested firms have a chance to compete. The GOC has given the U.S. the bidders list on compressors; and on valves and fittings.

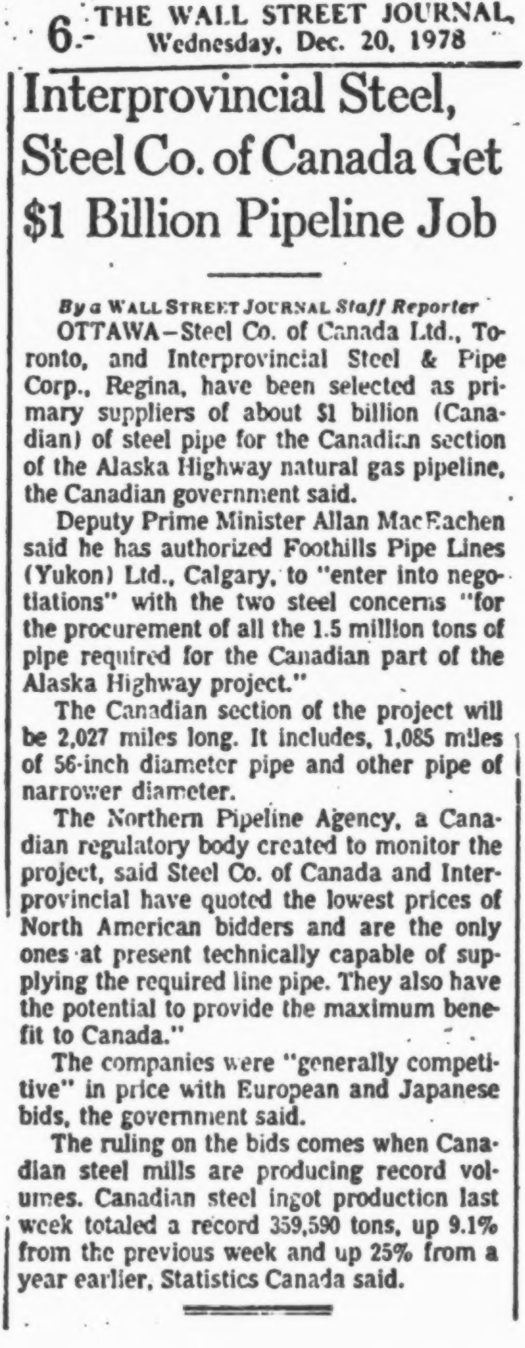
-- A basis-for-award process which identifies those firms capable of meeting "generally competitive" criteria (including reliability, deliverability, quality and service as well as price) and identification, from among this generally competitive group, of those firms capable of providing maximum potential industrial benefit to Canada; and

-- A review process by which follow-through on procurement principles would be verified.

The U.S. side assured the Canadian team that parallel procurement transparency and monitoring would be required for the U.S. segments of the project and that USG would welcome Canadian participation in a similar monitoring role.

With respect to consultations on the award of line pipe contracts, the two sides agreed to a procedure which would provide for independent certification of generally competitive terms by a Canadian chartered accountant which could form the basis for appropriate USG findings to be available to interested parties in the U.S.

ATTACHMENT B



6 THE WALL STREET JOURNAL, Wednesday, Dec. 20, 1978

Interprovincial Steel, Steel Co. of Canada Get $1 Billion Pipeline Job

By a WALL STREET JOURNAL *Staff Reporter*

OTTAWA—Steel Co. of Canada Ltd., Toronto, and Interprovincial Steel & Pipe Corp., Regina, have been selected as primary suppliers of about $1 billion (Canadian) of steel pipe for the Canadian section of the Alaska Highway natural gas pipeline, the Canadian government said.

Deputy Prime Minister Allan MacEachen said he has authorized Foothills Pipe Lines (Yukon) Ltd., Calgary, to "enter into negotiations" with the two steel concerns "for the procurement of all the 1.5 million tons of pipe required for the Canadian part of the Alaska Highway project."

The Canadian section of the project will be 2,027 miles long. It includes, 1,085 miles of 56-inch diameter pipe and other pipe of narrower diameter.

The Northern Pipeline Agency, a Canadian regulatory body created to monitor the project, said Steel Co. of Canada and Interprovincial have quoted the lowest prices of North American bidders and are the only ones at present technically capable of supplying the required line pipe. They also have the potential to provide the maximum benefit to Canada."

The companies were "generally competitive" in price with European and Japanese bids, the government said.

The ruling on the bids comes when Canadian steel mills are producing record volumes. Canadian steel ingot production last week totaled a record 359,590 tons, up 9.1% from the previous week and up 25% from a year earlier, Statistics Canada said.

ATTACHMENT C

DISCRIMINATION AGAINST FOREIGN SUPPLIERS IN CANADIAN GOVERNMENT PROCUREMENT

A Paper Prepared for the

American Iron and Steel Institute

by

W. Clark McFadden, II
and
Alan Wm. Wolff

VERNER, LIIPFERT, BERNHARD AND McPHERSON

September, 1981

1660 L Street, N.W.
Suite 1100
Washington, D.C. 20036
(202) 452-7452

EXECUTIVE SUMMARY

Canadian government procurement has traditionally discriminated against foreign goods and suppliers. In 1981, the Canadian government began to implement the Government Procurement Code agreed upon in the Tokyo Round of the Multilateral Trade Negotiations. Due to various exclusions in the Code, however, and the structure of Canadian procurement, less than ten percent of federal procurement and one percent of overall federal and provincial procurement are expected to be opened on a nondiscriminatory basis to foreign goods and suppliers. At the same time, Canadian government officials both at the federal and provincial level have substantially increased the scope and intensity of discrimination for procurement not covered by the Code.

Although these recent developments cannot be measured with precision, it appears that on balance Canadian procurement will retain its predominantly discriminatory character. This is especially true at the provincial level.

Canada's Traditional Discrimination Against Foreign Suppliers

Ample statutory authority exists on which to base federal procurement discrimination against foreign sources although no law explicitly requires discrimination. Instead, discrimination against foreign suppliers has been achieved through a variety of administrative measures that favor domestic procurement.

Historically, the greatest obstacle to foreign products and suppliers in federal procurement has been the lack of both publicity and open competitive bidding. In inviting firms to bid for procurement, Canadian officials usually rely on source lists that provide priority selection to domestic suppliers. When competing against a foreign firm, a domestic supplier is entitled to a 10 percent premium based on the amount of domestic content included in products offered. Finally, standard contract terms generally require the supplier to maximize the use of Canadian labor and materials.

Until recently these discriminatory devices were largely out of public view. They were applied without fanfare, the result of unpublished administrative policy and informal practice. Except when explicitly prohibited by international agreement, these domestic preferences have now become highly touted by government officials and more systematically imposed. Taken together, they constitute a significant barrier to foreign products and suppliers competing for Canadian government procurement.

Recent Changes to Increase Discrimination Against Foreign Suppliers

The Trudeau Administration took office in early 1980, emphasizing Canadian nationalism and advocating an enhanced role for government procurement in providing benefits to Canada. To assist domestic firms, several new procurement initiatives were undertaken:

-- A formal review mechanism was created to ensure that national objectives and economic benefits were taken into account in procurement awards.

-- A source development fund was established to subsidize Canadian firms, primarily in research and development activities, so that they could be competitive in gaining government procurement.

-- A new profit policy was introduced that would provide additional profit on negotiated procurement contracts according to value-added in Canada.

Various promotional programs were also introduced to increase import substitution in government procurement, especially for subcontractors and small businesses.

In connection with these new measures, the tone of government procurement in Canada became decidedly more nationalistic. Thus, the Minister for the Department of Supply and Services, Canada's chief procurement officer, could state "[T]he primary role of procurement is to achieve 'Canadianization.'"

Canadian government efforts to provide purchasing preferences to domestic suppliers have gone beyond direct government procurement. The federal government has increasingly utilized the regulatory certification process and the investment review process to assure purchases for domestic suppliers on major investment projects in Canada.

Overall these recent actions have heightened the discriminatory nature of federal procurement in Canada and extended its scope. In this way the traditional Canadian procurement system has grown more politicized and more protectionist.

Implementation of the New Procurement Code

On January 1, 1981, the Government Procurement Code became effective. The Code was designed to reduce discrimination against foreign suppliers by making procurement more visible and even-handed.

Although the Code required no amendments to Canadian statutes, many changes in Canadian practice are necessary for procurement to comply with the Code. Tendering procedures must be revised to provide an equal opportunity to foreign suppliers; premiums for domestic content must be eliminated; and contract conditions cannot require a supplier to maximimize use of Canadian labor and materials. Subsidies, increased profits and incentives available only to domestic suppliers would be outlawed. All of these changes will make Canadian procurement practice under the Code more transparent and accessible to foreign suppliers.

It is too early to assess the full impact of the Code on Canadian procurement. From all appearances, the Canadians are proceeding to implement the Code conscientiously -- though narrowly. Rather than serving to relax some of the existing restrictions against foreign suppliers in Canadian procurement, however, the procedures required by the Code have been strictly confined to those purchases subject to the Code, in effect creating a two track federal procurement system. For 1981, only an estimated $300-$400 million in Canadian procurement will be subject to the Code.

The relatively small volume of Canadian purchases affected by the Procurement Code will mean little new access for foreign suppliers to Canadian procurement. Indeed, the effects of the Code would appear to be overshadowed and more than offset by the vigorous efforts of the Canadian Government to strengthen preferences to domestic suppliers under its traditional procurement system.

Provincial Procurement

Procurement discrimination against foreign suppliers has also been reinforced within the Canadian provinces. Ontario has articulated a far-reaching and more aggressive procurement policy to favor Canadian suppliers. Quebec has steadfastly continued to provide preferences for the procurement of its own goods and services. Most of the Atlantic Provinces have recently promulgated general statutory preferences for provincial suppliers seeking government procurement. These preferences have also been incorporated in an inter-provincial purchasing arrangement to assist suppliers in the Maritime provinces.

Even the Western Provinces, which have generally refrained from imposing specific procurement preferences on domestic suppliers, have made concerted efforts to direct the purchasing for major investment projects towards local suppliers.

Mr. SHARP. Thank you. Does the gentleman from California, Mr. Dannemeyer, have any questions?

Mr. DANNEMEYER. I guess, Mr. Gaydos, one thing is not clear to me. I understand that the position of the Congress on this waiver package is up or down. We can't amend it in any way at all.

Isn't that right, Mr. Chairman?

Mr. SHARP. That is basically correct. We can take it as an up-or-down vote. There is some discussion about the possibility of taking waivers separately, but it would still be up or down.

There is a third alternative that is obviously conceivable at any time. That is that you legislate a new package of waivers. But, if that were to be done, of course, any Member of the Congress may discharge the Energy and Commerce Committee from the issue and, therefore, there could be a vote on the House floor which, if it passed, the legislation would be irrelevant.

Mr. DANNEMEYER. I sympathize with what you are saying. This is news to me. Do I understand the Canadians imposed this 15 percent surcharge after the agreement of September 1977, is that a correct statement?

Mr. DAVIS. Mr. Dannemeyer, since we were involved in trying to procure orders for the American steel industry in that, what the Canadians did was, first of all, change the diameter of the pipe to 56 inches.

One of the senior Canadian officials on the floor of the Parliament acknowledged that the principal reason for doing that was to insure that only Canadian pipe would be used on the Canadian portion and thereby exclude the American producers.

The second thing that we are talking about is subsequent passage of a statute in 1978 in which the Canadian Parliament endorsed the action of its Canadian Government and said that if the pipeline is going to be built across Canada, it will be built only with Canadian pipe.

It can't be any more clear than that from the record contained as part of my statement.

Mr. DANNEMEYER. How does the 15 percent figure get in there?

Mr. DAVIS. That was a duty. We started out trying to get the Canadians to waive the duty because the September 1977 agreement. The 1976 Natural Gas Act, as I remember, Mr. Chairman, talked about there would be no penalties imposed on either country on the materials.

Mr. DANNEMEYER. Was the 15 percent in existence in September 1977?

Mr. DAVIS. Yes.

Mr. DANNEMEYER. Was it a condition that that duty be waived?

Mr. DAVIS. We don't believe it was. That is the reason for the efforts of two Secretaries of State and a Congressman to get the Canadians to waive that duty since this was to be a joint project of both countries.

Mr. DANNEMEYER. The fact they didn't waive that 15-percent cannot be considered a violation of the agreement of 1977, to speak fairly, isn't that correct?

Mr. DAVIS. You might make that statement. In my statement, I don't even focus on the 15-percent duty issue. I focus on two other breaches of the agreement, the 56-inch pipe and Parliament saying Canadian material only.

Mr. GAYDOS. If I may respond, there are those who interpret the terms of the existing agreement to mean that if proper free reciprocal trade were followed, that the interpretation would be that the 15 percent should have been waived.

Mr. DANNEMEYER. Under existing law.

Mr. GAYDOS. Under existing law. The agreement between the nations properly and fairly and equitably interpreted would mean that they should have waived that.

Mr. DANNEMEYER. The Chairman has related to the committee members the status of this waiver package. We could enact substantive law to require that this American portion be built with American-produced pipe.

Is that what you are asking us to do?

Mr. GAYDOS. Yes.

Mr. DANNEMEYER. We can't amend the waiver package. But you are asking that this committee recommend that the Congress adopt a Buy-American provision as a matter of legislative policy for the American segment of this pipeline, is that what you are asking?

Mr. GAYDOS. Not specifically. If I could respond to my colleague again, we took the position in the caucus formally that even though technically we had a procedural approach or could bring this up for an up-or-down vote on the floor, we didn't think that would be the best policy to pursue.

We felt it is such an important issue that it is intricately involved in the interpretation of the agreement. We felt that if we took time and came before this group, and made these facts and our position known, that it would be discussed and the future application, interpretation, future actions under the terms of the agreement could be influenced by the position we take before this committee and on the floor of the House.

I want to assure you that the caucus is presently preparing an official position for use on the floor of the House during debate pertaining to the adoption of the package we speak about.

Mr. DANNEMEYER. The gentleman is far more experienced than this member from California. I don't think we are kidding ourselves, if a waiver package got out of the House before you got the law changed, you may never get it changed.

Mr. GAYDOS. I would defer to my colleague and I think you are right.

Mr. DANNEMEYER. Once that horse gets out of the barn, it is very difficult to put him back in.

Mr. GAYDOS. I would suggest to my colleague he can see the sensitivity of my position, the meaning of it. We are here to try, hopefully, to influence those who are calling the shots to take a second look at what they are doing on the last leg and to respond.

Mr. DANNEMEYER. What about the competitive producers of American pipe? As a practical matter, how close will our American producers come to meeting the price of the Japanese or European competitors on this American finger of 700-plus miles?

Mr. GAYDOS. The American industry has repeatedly in formal hearings stated that the American product is competitive. The only problem we have is the failure of the past administration and this administration to enforce the trigger price mechanism.

We have an awful lot of dumping in this country still going on, and a lot of this dumping reflects itself in a noncompetitive position which it creates, meaning the pipe comes in, it is dumped in here and then we have difficulty as an industry to compete with this dumped pipe.

That is why the Steel Caucus has been so persistent with this present administration.

Mr. **Dannemeyer**. I think my time has expired. I thank you.

Mr. **Sharp**. I thank the gentleman.

The gentleman from Kentucky, Mr. Rogers, is recognized for 5 minutes.

Mr. **Rogers**. I sympathize with your interest and the position you are taking. What specifically could this committee do, if anything, to promote the interest you are speaking of?

Mr. **Gaydos**. When we passed the original resolution, this committee, the Steel Caucus, was very active on the floor of the House in formal positions and informal positions.

We worked very closely with Chairman Dingell at that time, and we continued that close affiliation. Since the passage of the resolution which ultimately was approved and signed by the President, the committee on two——

Mr. **Rogers**. Excuse me, I didn't mean to ask you the history. I wanted to know what we can do now.

Mr. **Gaydos**. I think at this time pressure can be brought to bear upon Mr. McMillian, who's been in constant contact with members of this committee, also with the caucus at times, and also the administration, in numerous repetitive attempts to influence him to take a strong position as far as the last leg of the pipeline is concerned.

That is, that it use American pipe built in America—in the Alaska portion of the pipeline. Also, as I mentioned in my statement, the administration is going to begin to monitor this specific pipe coming in from various foreign countries.

The suspicion is there, and I can't say it is proven fact, but where there is smoke, there is fire usually, that much of this pipe is coming in at dumped prices.

Again, I have to go back to what our industry has said on many occasions, through the American Iron & Steel Institute, and through each specific manufacturer, Republic, United States Steel, all of them. They have said, if we have TPM enforced, and there is no dumping, and we are put in a position of fair competition, we can compete with any foreign country wherever the pipe's made.

That has been their position. I don't think it's changed. If you ask specifically what you can do, the committee can make its feelings known on this matter, both to the administration as to what they should be doing as far as enforcing TPM and also to Mr. McMillian.

Mr. **Rogers**. I thank the gentleman.

Mr. **Gaydos**. I yield to Mr. Benjamin.

Mr. **Benjamin**. I would add by saying that not to technically disqualify Americans before you start, in basically either demanding it be 56-inch pipe in Alaska or that the so-called Arctic grade 48-inch be used, and no American is making Arctic grade 48-inch.

We do make it. Obviously, Mr. McMillian is in the position to disqualify before you even get started. So that is the first thing, use the leverage of the committee to make sure you get a fair shake for American competition.

Where we have had outright competition, the Americans have won the western leg basically 100 percent, about 160,000 tons of pipe.

On the eastern leg, out of the 588,000 tons, Americans on a competitive basis have won 339,000 or 67 percent.

However, when you go into Canada where you have 1.4 million tons and you have the Canadian restrictions, Canadian pipe only, all 100 percent basically went to Canada.

You can't compete under those terms and laws. So what we are saying is, first keep the open competition so that you are not disqualified by the stroke of the pen, and second, as Mr. Gaydos says, enforce the 1921, 1974, and 1979 Trade Acts, together with the TPM or trigger price mechanism, to make sure the steel is not dumped in this country.

You give us that fairness and we know we can compete. Basically I would say to you if you really wanted to be fair, by the leverage that you have as this committee, I would insist on a Buy-American preference so we would have the same shake the Canadians had, 50 percent American and 50 percent Canadian.

Mr. Gaydos. It comes to mind again, the words of the Canadian Parliament, the words in one of their sessions whereby one of their members stated emphatically, unequivocally, the reason why they went to the 56-inch pipe was so it would be built with Canadian steel, Canadian pipe in Canada.

That is what they really wanted from the beginning. It seems so unfair that they are so exuberant and so intense and unabashed in their approach to make sure Canadian pipe is used in Canada while we are again as usual, Uncle Sucker. Everybody comes into our country and our free market, we talk about how free it is, and we end up being on the short end of the stick.

I think it is about time, of course, I don't want to philosophize before my colleagues, but I think it is about time this country starts developing the same hardnose attitude a lot of countries have in international trade and in interpreting the 1979 Trade Act.

Mr. Rogers. I thank my two colleagues for their unexuberant statement.

Mr. Sharp. The gentleman from Massachusetts, Mr. Markey, is recognized for 5 minutes. Technically, I think Mr. Corrada was here first.

Mr. Corrada. I have no questions except to, of course, commend the chairman of the steel caucus and our colleague from Indiana for their interest in this subject and one in which we will definitely be very much aware of their concern.

Thank you.

Mr. Gaydos. I want the chairman to know Mr. Corrada is a very active member of the caucus.

Mr. Sharp. The gentleman from Massachusetts is recognized for 5 minutes.

Mr. **Markey**. Thank you, Mr. Chairman. I want to compliment the gentlemen on their statements. We have been speaking today about waivers. I guess it is not inappropriate that we talk about other kinds of waivers as Mr. Benjamin has pointed out.

What I would like to know is whether or not in their knowledge, the Italian Steel Co. which has already constructed a portion of the pipeline, whether or not they have had some assistance from their own government in helping to finance their bid for contracts on this pipeline.

Are you familiar with the relationship the Italian Steel Co. has with their government?

Mr. **Benjamin**. Mr. Markey, I can only speak peripherally to that. Mr. Davis may want to comment specifically to this project. Almost all bids from the Italian steel producers are subsidized by their government. In fact, that is a complaint with them. Other countries of the European Economic Community, specifically the Germans, complain that they can't compete because the Italians subsidize so heavily.

In this instance, I don't find that the color would change. I would have to conclude that they were heavily subsidized.

Mr. **Davis**. Mr. Markey, according to financial analyses that have been made of the Italian steel industry, let me just give you one company, a major Italian steel producer, Ital-sider is the name of the company.

Let me give you its absence of profits for the last 6 years and I would ask you, if you were managing this company in a private free enterprise system, whether you think you would still be around to participate in the Alcan project.

In 1975, they lost $78 million. In 1976, they lost $140 million. In 1977, they lost $425 million. In 1978, they lost $375 million. In 1979, they lost $278 million and in 1980, they lost $804 million.

The only way you can continue to operate with that kind of financial record, and I would not call it performance, but a financial record, is because the government maintains your operations in order to meet social and political objectives.

Mr. **Markey**. What about in this instance on the bidding? Do we see any evidence that the Italian Government will participate in helping to finance the Italian Steel Co.

Mr. **Davis**. They will have to continue to participate and financially subsidize its operation.

Mr. **Markey**. Do you think the U.S. steel companies would then be at a disadvantage as a result of that?

Mr. **Davis**. Can we compete with foreign governments, sir? We cannot, obviously.

Mr. **Markey**. So we wind up in a position in which we theoretically have set up some kind of fair competition but if you look behind the scenes, you see the financing available to other countries.

In essence, you have to pierce the corporate veil here and see exactly what the relationship is between these companies and their government.

We see our companies really aren't in a position to compete in order to gain these contracts.

Mr. Gaydos. We are getting a double whammy for want of a better term. The first whammy is, of course, a very intriguing difficult international problem that has been with us for many, many years, even when we had the new Trade Act.

And that is we are having trouble enforcing TPM, and also generally the trade laws. In fact, there are several major steel companies that have prepared and are ready to proceed very shortly with antidumping suits under the 1979 Trade Act.

I can't say specifically, I am checking it, but I would presume Italy may be one of them, since you raised the question of whether Italy is subsidying its steel industry. It may be. I am not certain. But there are going to be members of the European Common Market that are going to be definitely named defendants in that suit. That is the first whammy.

The second whammy is where we have our Canadian partners, I use that term very advisedly, over here doing their charade and their little sidestep and their little dance to make sure that Canadian pipe is used.

When it comes to American pipe in American territory, that is out of the question. They find all kinds of subterfuge.

Finally, I would say this. There has been a serious technical question raised as to whether or not 56-inch pipe was the proper determination to be used on the Canadian part. It could be argued both ways.

Supposedly, based upon the information that I have, the better technical conclusion would have been to use 46—48-inch pipe. That would have been the better thing to do but because the Canadians produce 56-inch pipe and we don't, it just seems we get caught in both of those vices.

Mr. Markey. I thank you, Mr. Chairman. I thank the gentlemen.

Mr. Sharp. Gentlemen, let me ask you. Mr. McMillian did testify here earlier last week and I asked him about the steel question and, the response at that time was not pursued adequately, but was stated simply that the competition-quality question was the one that had ruled out American firms so far.

I wonder if you would comment on that.

Second, as I understand it, he is engaging with United States Steel, the possibility of United States Steel expanding their Baytown plant and being able to have an effective bid for the pipe.

But the question arises as to whether that very process, that plant expansion would actually delay, would not be able to meet presumed construction schedules.

Of course, the banks haven't committed in terms of coming in with the money, but would you care to comment on either of those questions?

Mr. Davis. Mr. Chairman, I understand United States Steel Corp. and Northwest are and have been in contact. I would hope that as a result of some of the testimony that has been presented at this hearing that those contacts and conversations and consultations will continue.

But in addition to the main pipeline, which is 48-inch, we also must focus on all the auxiliary requirements which are substantial in and of themselves, and the sourcing for these requirements is not limited to only one American concern.

There are a number of American concerns that ought to be encouraged by Mr. McMillian and his proponents, the project sponsors, to find ways and means of utilizing American material, American labor for the construction of this portion of the line.

Mr. GAYDOS. If I may add I checked the producer this morning, and as a result of those discussions and consultations, a representative of the United States Steel has assured me that their existing facilities can handle the order in a timely fashion; it would not constitute a delay, and all the technical requirements could be met.

Mr. BENJAMIN. Mr. Chairman, I have never heard the quality issue introduced before.

So I don't know and don't have any reason to believe that quality could be the answer for the substitution of Canadian noncompetition for American competition. Like my colleagues, I know that the steel companies in America who are interested in pursuing at least the Alaskan leg of this are prepared to go forward.

Mr. SHARP. I am sure many of us feel very strongly that we certainly ought to have an opportunity in this process and ought to be the beneficiaries of the extraordinary sums of money that are going to be spent creating a number of jobs in this country.

I am not sure I am clear, perhaps I should be addressing Mr. McMillian again and not you people, but as I understand it, the one problem you raised was what happened in Canada.

The other problem was the potential contracts in Alaska. Is the competition there not from Canadian firms, but rather from Japanese and others?

I am assuming that is a wider range of competition. In other words, any kind of petition we may make to the Canadian Government is not going to be particularly relevant to what happens in Alaska.

Mr. DAVIS. That's correct, it could be worldwide sourcing. That brings us back to what Congressman Markey was talking about, the fairness of American workers and American management having to compete with governments that are saying we want a portion of that job, and we shall quote whatever price is necessary and we shall make sure our companies come out all right on it.

Mr. SHARP. Gentlemen, I certainly appreciate your testimony and your interest. I know that many of our committee members who could not be here this morning are particularly interested in this aspect of the problem, and undoubtedly will be expressing themselves on it to you, me and to others in the Congress.

We appreciate your testimony.

Mr. GAYDOS. The steel caucus thanks the committee for its indulgence.

Mr. SHARP. Thank you. We will have our State witnesses at this time and then break for lunch after that.

Now we will have Mr. Hasten, chairman of the Illinois Commerce Commission; and Mr. Don Newman, director, Washington Office, State of Indiana.

A number of States were invited. Several may yet wish to testify before completion of our hearings, but at this time, we are delighted to have, I believe, two witnesses.

Perhaps Mr. Hasten is not with us this morning.

We are delighted to have you, Mr. Newman, representing the State of Indiana, with us this morning.

STATEMENT OF DON M. NEWMAN, DIRECTOR, WASHINGTON OFFICE, STATE OF INDIANA

Mr. **Newman**. Thank you, Mr. Chairman, members of the subcommittee. The hour is late. The State of Indiana has prepared a three-page testimony, and essentially what we have attempted to do here is two things.

My old econ. prof. would probably say it is a heroic attempt to capsulize the essence of the problem in the first two pages, for those in the State that are not familiar with this issue.

And essentially, the last paragraph sets out the position of the State of Indiana. I will forego reading the first two pages.

Mr. **Sharp**. Without objection, we will make that a part of the record.

Mr. **Newman**. Thank you, Mr. Chairman.

If I may, I will share with you the State's position on the issue of waivers. We in Indiana do genuinely believe that the natural gas option as an alternative to electricity, oil, and other forms of energy should be maintained for Indiana consumers and that healthy competition should exist among these forms of energy for the best interests of the consumers.

Therefore, even though the cost of natural gas from Alaska, with such waivers of law as may be necessary, may appear to be uneconomic in the short term, we must not forfeit consumers' future opportunities with respect to such gas. We empathize with the difficult decisions facing Congress and the administration on this issue.

Thank you, Mr. Chairman, that is the statement. We have counseled with some of the experts back in the State.

We would be happy to entertain questions if there are any.

[Mr. Newman's prepared statement follows:]

STATEMENT OF DON M. NEWMAN, DIRECTOR, WASHINGTON OFFICE, STATE OF INDIANA

MR. CHAIRMAN, MEMBERS OF THE SUBCOMMITTEE, YOU ARE FACED WITH A MOST DIFFICULT TASK IN FORMULATING A SOLUTION TO THE CONTINUATION OF FINANCING FOR THE ALASKAN NATURAL GAS TRANSPORTATION SYSTEM (ANGTS). YOU HAVE GIVEN MUCH OF YOUR TIME AND EFFORT IN RECEIVING TESTIMONY AND WEIGHING INTERESTS ON THIS SUBJECT. HOWEVER, FOR MY OWN PURPOSES, LET ME SEE IF I CAN SYNOPSIZE AND RESTATE THE PROBLEMS AS I PERCEIVE THEM EVEN THOUGH I ENGAGE THE DANGER OF OVER SIMPLIFICATION.

IN 1967, A VERY LARGE OIL AND NATURAL GAS RESERVE WAS DISCOVERED AT PRUDHOE BAY IN ALASKA. THE OPEC OIL EMBARGO ABOUT FIVE YEARS LATER EMPHASIZED THE NECESSITY OF OBTAINING THESE ENERGY RESOURCES. CONGRESS RECOGNIZED THE IMPORTANCE OF BRINGING THIS GAS TO THE LOWER 48 AMERICAN MARKET BY ENACTING THE ALASKA NATURAL GAS TRANSPORTATION ACT OF 1976. ANGTS CONSISTS OF A GAS CONDITIONING PLANT AT PRUDHOE BAY; A 745 MILE PIPELINE FROM PRUDHOE BAY RUNNING SOUTH ALONG THE EXISTING OIL PIPELINE RIGHT-OF-WAY AND THEN SOUTHEAST ALONG THE ALASKA HIGHWAY TO THE CANADIAN BORDER; THE CANADIAN SEGMENT RUNS APPROXIMATELY 1500 MILES TO CENTRAL ALBERTA AND FORKS INTO TWO LEGS; THE WESTERN LEG CARRIES GAS TO THE SAN FRANCISCO AREA; AND THE EASTERN LEG WILL CARRY GAS TO THE CHICAGO AREA. THE TWO LEGS ARE BEING LARGELY PREBUILT TO CARRY CANADIAN GAS TO THE LOWER 48 STATES, AND THE WESTERN LEG HAS BEEN COMPLETED ON SCHEDULE AND UNDER BUDGET. THE COMPLETE ANGTS WOULD COVER APPROXIMATELY 4800 MILES.

THE BASIC ECONOMIC PROBLEM OF THE PROJECT IS THAT THE COST HAS ESCALATED FROM $10 BILLION IN 1975, IN AS SPENT DOLLARS, TO A CURRENT PRICE TAG OF $34.5 BILLION. THE DOUBT OF ECONOMICAL VIABILITY OF THE PROJECT NOW IS FURTHER EXACERBATED IF DECONTROL OF NATURAL GAS IS OBTAINED AND OIL PRICES DO NOT RISE FASTER THAN

THE COSTS OF THE PROJECT. THE PIPELINE SPONSORS HAVE BEEN TOLD BY THE FINANCIAL COMMUNITY THAT IT WILL BE IMPOSSIBLE TO OBTAIN FINANCING FOR THE PIPELINE UNDER CURRENT LAW.

FAILURE TO COMPLETE ANGTS WOULD FURTHER CREATE A SIGNIFICANT U.S.-CANADIAN PROBLEM. THE UNITED STATES HAS CONSISTENTLY ASSURED CANADA THAT CONSTRUCTION OF ANGTS IS OUR GOAL. PRESIDENT REAGAN RECENTLY STATED IN A MESSAGE TO PRIME MINISTER TRUDEAU "THAT THIS PROJECT IS IMPORTANT NOT ONLY TO THE ENERGY SECURITY OF NORTH AMERICA, BUT ALSO AS A SYMBOL OF U.S.-CANADIAN COOPERATION."

BUT, EVEN WITH THESE SIGNIFICANT ECONOMIC AND FOREIGN RELATION PROBLEMS, THE REMAINING POLITICAL PROBLEMS LOOM LARGEST. BECAUSE OF THE EXTRAORDINARY DIMENSIONS AND COMPLEXITY OF THE ANGTS, CONGRESS ENVISIONED THAT A SPECIFIC WAIVER OF LAW MIGHT BE NEEDED TO REMOVE OBSTACLES TO "EXPEDITIOUS CONSTRUCTION AND INITIAL OPERATION." THE PRESIDENT SUBMITTED A WAIVER PROPOSAL DEALING WITH SEVERAL PROVISIONS OF THE LAW. (THOSE JUST TECHNICAL IN NATURE WILL NOT BE DISCUSSED.) GENERALLY, THE PRESIDENT'S PROPOSAL WOULD:

1 - ALLOW PRODUCERS OF PRUDHOE BAY GAS TO FURTHER PARTICIPATE IN THE OWNERSHIP OF THE ALASKAN PIPELINE SEGMENT AND THE GAS CONDITIONING PLANT SEGMENT WITH PROPER CONTROLS AND RESTRICTIONS.

2 - INCORPORATE THE GAS CONDITIONING PLANT WITHIN THE ANGTS WHICH WOULD THEN ALLOW THIS COST (AT LEAST $3 BILLION) TO BE RECOVERABLE FROM THE RATEPAYERS THROUGH FEDERAL ENERGY REGULATORY COMMISSION (FERC) - APPROVED TARIFFS ALONG WITH PIPELINE CONSTRUCTION COSTS.

3 - ALLOW BILLING FOR TRANSPORTATION THROUGH THE ANGTS BEFORE THE SYSTEM IS COMPLETED AND THE GAS BEGINS TO FLOW, UNDER CERTAIN SPECIFIED AND LIMITED CIRCUMSTANCES.

IT IS THIS LAST PROPOSAL IN THE WAIVER THAT POSES THE GREATEST POLITICAL PROBLEM. IN ESSENCE, IT PROVIDES A CONSUMER GUARANTEE THAT THE CONSTRUCTION INVESTMENT WOULD BE REPAID EVEN IF THE PIPELINE WERE

DELAYED OR EVEN NEVER USED. IT WOULD PASS THE RISKS TO THE CONSUMERS, AND SEEMINGLY STILL RETAIN THE REWARDS FOR THE SPONSORS. HOWEVER, THE FOUR MAJOR BANKS SERVING AS FINANCIAL ADVISORS TO THE SPONSORS, BANK OF AMERICA, CHASE MANHATTAN, CITICORP AND MORGAN GUARANTY, HAVE RECOMMENDED PRE-BILLING AS THE ONLY WAY TO SECURE FINANCING, SHORT OF FEDERAL GUARANTEES. BOTH THE CONGRESS AND THE ADMINISTRATION HAVE INDICATED THAT FEDERAL GUARANTEES AT THIS TIME ARE UNACCEPTABLE. THE POLITICAL QUESTION TO BE ANSWERED BY THE CONGRESS IS HOW MUCH REGULATORY PROTECTION OF CONSUMERS MUST BE GIVEN UP IN ORDER TO OBTAIN AN ENVIRONMENT OF REGULATORY AND FINANCIAL CERTAINTY THAT WILL FACILITATE FINANCING FOR THE ANGTS.

WE IN INDIANA DO GENUINELY BELIEVE THAT THE NATURAL GAS OPTION AS AN ALTERNATIVE TO ELECTRICITY, OIL AND OTHER FORMS OF ENERGY SHOULD BE MAINTAINED FOR INDIANA CONSUMERS AND THAT HEALTHY COMPETITION SHOULD EXIST AMONG THESE FORMS OF ENERGY FOR THE BEST INTERESTS OF THE CONSUMERS. THEREFORE, EVEN THOUGH THE COST OF NATURAL GAS FROM ALASKA, WITH SUCH WAIVERS OF LAW AS MAY BE NECESSARY, MAY APPEAR TO BE UNECONOMIC IN THE SHORT TERM, WE MUST NOT FORFEIT CONSUMERS' FUTURE OPPORTUNITIES WITH RESPECT TO SUCH GAS. WE EMPATHIZE WITH THE DIFFICULT DECISIONS FACING CONGRESS AND THE ADMINISTRATION ON THIS ISSUE.

Mr. **Sharp**. Thank you.

Do my colleagues have questions? The gentleman from California, Mr. Dannemeyer.

Mr. **Dannemeyer**. I want to make sure I understand what you have said. Is the State of Indiana supporting this waiver package?

Mr. **Newman**. We are essentially supporting whatever has to be done in dealing with what is obviously a finite limited resource of energy that may offer some hope for our resource in the long term.

Mr. **Dannemeyer**. It sounds to me like you are hedging a little bit. I don't want to put you on the spot, but the question, is the State of Indiana supporting this waiver package? That could be answered yes or no.

Mr. **Newman**. I am thinking that in general the answer would be favorable.

Mr. **Dannemeyer**. Well, you know, I spent 3 years in Indiana going to school. People from that part of the State speak more clearly than that, sir.

Mr. **Newman**. It seems to me, Mr. Dannemeyer, that, especially on this issue, you are being faced with developing a perfect answer with imperfect and incomplete information.

I am not sure that the State of Indiana is in a position to advocate that, absolutely, the waiver package should be supported unequivocally. They would defer to the judgment of this committee, especially, since you have reviewed hours of testimony and hundreds of pages of information.

I would hesitate to impose Indiana's judgment on a committee that knows so much more about this subject than we know.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. **Sharp**. The gentleman from Massachusetts?

Mr. **Markey**. How about, let me just ask you a specific question on the part of the pipeline. I don't know if you have had an opportunity to look at it. But there is a part of the pipeline, a conditioning plant, that, as the gas comes out of the ground, it has to go through a conditioning plant to remove certain properties.

Well, some of those properties are very valuable for use as petrochemical feedstocks, natural gas liquids. Under the original bill, the cost of that plant was to be borne by the producers. And that cost was approximately $3 billion.

And now the cost is shifted over under this waiver to the ratepayer. So you get the principle at $3 billion plus 18-percent interest for an indefinite period of time. Now, you have got a problem here that the pipeline might never be finished, but yet, this plant would still be able to function in removing these liquids from the natural gas, benefiting the producers, but in no way benefiting ratepayers, as the ratepayers have to continue to put an extra buck fifty a month on their bills in perpetuity to pay off an uncompleted pipeline.

Do you have any problem with that? Is that a provision that you might find to be objectionable in terms of the shifting of the burden of responsibility for the financing, especially on this part of the plant, where a substantial amount of the benefit is to be accrued to the producers, rather than to the ratepayers.

The conditioning plant will give them this byproduct that is very valuable to them.

Mr. **Newman**. Mr. Markey, that is addressed in this testimony. I believe it is on page two, where we recognize the passage and transfer of the burden from the sponsors to the consumers, and especially in the area of the $3 billion production plant.

There is a concern on the State's part in protection of its citizens about that transfer of the burden. We address it tangentially and then speak to the issue of long-term benefits.

I understand you have to vote up or down on this waiver package and that you cannot temper this particular issue.

Mr. **Markey**. We could get a new waiver package. They could send another to us.

Mr. **Newman**. I think that would be worthy of consideration, especially in this particular proposal. That there ought to be some of the benefits that go with some of the burdens to the consumers.

Mr. **Markey**. So you would recommend a new set of waiver proposals be sent to the Congress?

Mr. **Newman**. I think on this particular point that your position deserves support.

Mr. **Markey**. So if it is all or nothing at all, then you say nothing at all, send us a new package that deletes especially this particular offensive provision?

Mr. **Newman**. I am not acquainted with the technicalities of the waiver package to the point where you could handle it as an amendment. You are telling me you cannot. That you have to either vote this up or down. That is my understanding.

I do share your concern, the State shares your concern about the burdens to the consumer without any of the benefits, especially on the conditioning plant.

Mr. **Markey**. So if we don't have an option, you would say to reject it?

Mr. **Newman**. No, sir.

Mr. **Markey**. If we cannot amend it legislatively, you would prefer for us to go to a completely new proposal rather than accept this one?

Mr. **Newman**. I do think your concern about the lack of sharing the benefits with the consumers, especially on the conditioning plant along with the burdens, is well taken.

Mr. **Markey**. Thank you.

Mr. **Sharp**. Thank you, Mr. Newman. We appreciate your help this morning, and we will possibly be having several State PUC's testifying at a later time. We had hoped to get all the State witnesses in at the same time, but that didn't work out.

Thank you very much.

Mr. **Newman**. Thank you, Mr. Chairman.

Mr. **Sharp**. The subcommittees will stand in recess until 2 o'clock when we will return to this room.

[Whereupon, at 12:23 p.m., the subcommittees were recessed, to reconvene at 2 p.m., the same day.]

AFTERNOON SESSION

Mr. **Sharp**. The subcommittee will come to order. We will continue our hearing on the Alaska natural gas pipeline waivers.

Our panel this afternoon begins with representatives of the U.S. gas industry: Mr. George Lawrence, president of the American Gas Association; and Mr. Jerome McGrath, president of the Interstate Natural Gas Association of America.

Gentlemen, welcome. We are delighted to hear from you. We will, of course, make any written testimony a part of the record.

If you wish to summarize, that will be fine. We are delighted to hear from you.

STATEMENTS OF GEORGE H. LAWRENCE, PRESIDENT, AMERICAN GAS ASSOCIATION, AND JEROME J. McGRATH, PRESIDENT, INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA

Mr. **Lawrence**. Mr. Chairman, I am George Lawrence, president of the American Gas Association, and I would ask that my prepared statement be made a part of the record.

Also, Mr. Chairman, we are in receipt of the letter of October 22, from you and Chairman Udall, asking some seven specific questions, and we received this in the office only yesterday. We have had a chance to look at it. I am prepared in my summary to respond to you. But we would also ask that a more detailed written response to this letter also be made a part of the record in a few days. [See p. 866.]

Mr. **Sharp**. We will be happy to do that. Thank you. We are sorry you had such a short time on the specific questions.

Mr. **Lawrence**. Thank you, Mr. Chairman. I will summarize mine in 7 or 8 minutes, if I may, and make a few basic points, and also respond to some of those questions included in your letter. The energy potential in the State of Alaska is enormous. It is not only the 26 trillion cubic feet of proven reserves on this project, but the total resource base including reliable potential resource base estimates which are now about 177 trillion cubic feet.

As we point out in the summary part of the prepared testimony, this project when it initially goes onstream would replace some 400,000 barrels a day of imported oil and could be very easily expanded to replace 600,000 barrels per day.

Now, demand for this gas will exist, particularly when we do remove the market restraints, that we have come before your committee several times recently to discuss, contained in the Fuel Use Act and the incremental pricing provisions of the Natural Gas Policy Act. Because of the efficient environmental advantages and because of its economic competitiveness, coupled with removal of these restraints, we are convinced there will be a growing demand and marketability of this gas.

If I might refer you briefly to page 3 of my prepared testimony, there is a summary of the comprehensive gas supply projection that the American Gas Association's Gas Supply Committee published a year ago after 2 years of very comprehensive, detailed study.

We see there four scenarios of different ranges of gas supply. One that would focus a total self-sufficiency for the United States. One that would have a North America focus. One that would incorporate moderate world imports and one on which there would be an unrestrained focus on the gas option worldwide.

It focuses on not only the lower 48, but all the principal supplemental supplies of gas: Synthetics from liquid hydrocarbons; certainly gas from Alaska; from Canada; Mexico; LNG imports and coal gasifications; new technology contributions from the lower 48; in particular, tight formations; and, other new technologies.

We note in the lower 48 range that in each instance we have adopted for the year 2000 a range of conventional lower 48 State natural gas, in the range of 12 to 14 trillion cubic feet. This is in line with other major estimates that have come forth including that of the previous administration and quite in line with that of the current administration in its National Energy Policy Plan No. 3.

What this says to us, Mr. Chairman, Mr. Dannemeyer, is that we have never been accused of being pessimistic at the American Gas Association on the potential gas supply, and our ability to expand the gas options contribution.

But we do see conventional gas supply falling off in the outyears of 1990 and beyond the year 2000. The conventional lower 48 State supplies, as much as would like them to be, are not a panacea of long-term contribution to this Nation's energy options.

Herein we find one of the principal problems that we in the natural gas industry have always faced. There is always a tendency to compare one natural gas supply source with another. I am fearful that we have some of that here on this particular issue.

That we are looking to the lower 48 States as perhaps a more economic and more preferable long-term supply of gas preferable to the Alaskan alternative. And while we certainly encourage and support full development of the lower 48, it is not a panacea. We are going to need the Alaskan alternative.

You will note that in three of the four options, the Alaskan portion of the estimate calls for 3 trillion cubic feet or around 10 percent of the total. Also, I would call to your attention that Canadian and Mexican gas import estimates, particularly in the North America focus, which we think is probably the most logical scenario, calls for 2 trillion cubic feet from both Canada and Mexico.

I might point out that if, for some reason, this project does fail, and we do default on our previous and more recent commitments to the Canadians, that this might have an adverse effect on the ability of Canadian supply for long term, and perhaps throughout North America. It might also spill over to our relationships on the Mexican supply.

So the net result of these alternatives are that in our projections to the year 2000, looking at gas supply from every source, the Alaskan resource base is the key to this long-term supply.

If I might turn to four of the points contained in your letter, in the questions, one goes to the marketability and price of this gas. As has been restated here many times, the project sponsors have proposed an overall average price in 1980 dollars of between $4.65 and $5.10 per million Btu. One of the things we have gone through very recently in all of the estimates of accelerated decontrol is what is the competitive market price for gas.

And I think there has been a continual movement toward realism there. That the competitive market for gas is that which will compete in the industrial market. These ranges of $4.65 to $5.10 we find will compete in the industrial market especially if we are able to remove the market restraints of incremental pricing and fuel use acts.

So we think Alaskan gas can compete with residual fuel or imported oil in the industrial market. But that is not, certainly, the only demand option for this gas supply. We think we are going to have, in several nontraditional markets, a much higher value and increasing gas demand in such categories as cogeneration of electricity and methane-fueled vehicles, in gas air-conditioning, in select use of a gas where the clean burning attributes of gas are used to enhance the burning of coal.

It is also one of our projections that in the mid-1980's, the increased gas supply together with the ability of gas to enhance the use of coal, could come pretty close to making this Nation energy self-sufficient. So our answer to that question is that the marketability and demand for this gas from Alaska is there.

As to this business of always comparing gas with other alternative supplies of gas, I invite your attention to the fact that some of the long-term supplies of energy are not only imported oil, but they are various forms of electricity, whether coal or nuclear generated, or from shale oil or liquified coal. And when you compare the capital efficiency of this project, that is, the energy delivered per dollar invested, you will find that it is more capital efficient than those long-range energy alternatives of shale oil, coal liquids, coal generated electricity.

Turning to the question of whether this will have an adverse effect on proposals to deregulate or accelerate the deregulation of the field price of natural gas, we think not. This project won't come onstream until certainly 50 percent of the gas will be deregulated by virtue of the Natural Gas Policy Act, come Jan. 1, 1985.

And the proposals that the Administration and others are seeking that might or might not succeed, but they are seeking, would certainly deregulate the remainder of the gas in the later part of the 1980's. In any event, whether there is the accelerated deregulation or not, if we stay on the path of the Natural Gas Policy Act, the 50 percent will be deregulated in 1985. The existing flowing gas that will not be deregulated will be essentially depleted in 1990.

So we think these lower 48 State projections of conventional natural gas supplies in the range of 12 to 14 trillion cubic feet are probably in the ballpark. So we are going to need this new supply and it won't have the adverse effect on deregulation.

As to the point of the comparative risks to the consumer if we do move forward with these waivers, I think actually, we don't see any technical risk of failure to complete this project. The only risk, if you could call it that, is one of delay. Even if all three segments are not completed by the time the FERC sets as the target date for the present billing to commence we do not see any substantial impact on the consumers.

Just to go back over the numbers Secretary Edwards mentioned this morning, the present billing costs are 32 cents for the conditioning plant—these are per month—80 cents for the Alaskan portion, and 98 cents for the Canadian portion.

And not all three, but no more than two of those could be applied at any one time. So there could not possibly be more than between 1 and 5 percent increase of the average residential consumer's bill imposed by the present billing procedure.

And I think it is important to stress there that it is not an either-or situation. It is a matter of time on this particular billing. If there is advance billing, it is still going to reduce the out-term cost of debt on this particular project. A cost of debt the residential consumer and other consumers would be asked to bear at some point in time, anyway.

So we really don't see any adverse economic impact on the residential consumer, and we represent some 300 natural gas distribution companies, and they serve 160 million of these consumers. Ours are the companies that have to go before the State commissions, that have to meet the various consumer groups, and incur in some cases the wrath and indignation over what has been about a 20- to 22-percent price rise at the burner tip over recent years.

So we are very concerned about this point. But we don't see this as an adverse risk to the consumer. To the contrary, if this project is not built, and the alternative to that consumer, the residential consumer, is imported oil, or No. 2 home heating oil at a substantially higher price, or electric space heating or electric heat pumps at a higher price, that risk to the consumer is greater.

The final point addresses your question: Would there be intolerable competition between pipelines for this gas? Again, we think not. The 10 pipelines will be serving distributors and consumers in 48 of the 50 States. Only Hawaii and Vermont will be left out of it.

Again, to the contrary. If this project is not built and these particular pipelines who are relying on this Alaskan gas supply as a significant part of their long-term supply projections are forced to seek alternative gas supplies, it could increase competition by bidding up the field price of lower 48 gas or by going for other sources of gas supply that might be higher priced.

But again, I hope the focus will not be on stressing competition between our pipelines or our gas companies, but the focus could be on the alternate forms of energy for which the economics, environmental desirability, and security of supply are inferior to those of this project.

Thank you, Mr. Chairman.

[Testimony resumes on p. 816.]

[The statement of Mr. Lawrence and attachments follow:]

TESTIMONY OF GEORGE H. LAWRENCE
PRESIDENT OF THE AMERICAN GAS ASSOCIATION
BEFORE JOINT HEARINGS BY THE
HOUSE ENERGY AND COMMERCE SUBCOMMITTEE ON
FOSSIL AND SYNTHETIC FUELS
AND THE HOUSE INTERIOR AND INSULAR AFFAIRS SUBCOMMITTEE
ON ENERGY AND THE ENVIRONMENT
ON PROPOSED WAIVERS FOR
THE ALASKA NATURAL GAS TRANSPORTATION SYSTEM
OCTOBER 27, 1981

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Introduction:

Mr. Chairman and members of the Committee:

I am George H. Lawrence, President of the American Gas Association (A.G.A.). We represent nearly 300 natural gas transmission and distribution companies, serving over 160 million consumers in all 50 states. On behalf of these companies, I am pleased to appear before you today to reaffirm A.G.A.'s strong support for the Alaska Natural Gas Transportation System. This project is as important today as it was when Congress approved it in 1977. We urge expeditious approval of the proposed waiver package. The project sponsors and the financial community have stated at these hearings that unless the waivers are approved this pipeline cannot be built as planned. As you review this waiver package, which will determine whether this project will get private financing, three important points need to be considered:

- The energy potential of Alaska is enormous. A.G.A.'s Gas Supply Committee estimates that proven Alaskan natural gas reserves on the North Slope are 26 trillion cubic feet (Tcf), while total potential gas resources for all of Alaska are 177 Tcf.

- Domestic gas energy supplies are essential for our national security. If there is another oil supply cut-off, Alaskan gas could replace 400,000 barrels/day of OPEC oil. The system could easily be expanded to replace 600,000 barrels/day of foreign oil, if necessary.
- Even if there are no oil supply disruptions, there is a large market for Alaskan gas. The demand for gas, particularly when unrestrained by the Fuel Use Act and incremental pricing, is high. Natural gas is the cleanest fossil fuel and its use has many environmental advantages.

TAPPING ALASKA'S RESOURCES IS A STEP TOWARD ENERGY SECURITY

The largest oil and gas field on the North American continent was discovered in 1968 at Prudhoe Bay on the Alaskan North Slope. This gas resource is an important part of total U.S. energy supplies. Contracts to deliver over 22 Tcf of gas through the Alaskan pipeline have already been negotiated. This represents over 11% of all proven U.S. reserves.

The A.G.A. Gas Supply Committee, which is made up of senior gas industry executives, considered all the gas supply options through the year 2000. After two years of analysis, the Committee developed four scenarios, or supply pictures, for the year 2000. Each scenario projected that gas supplies would be adequate for U.S. needs and each scenario included estimates for conventional gas production in the 48 states, for gas imports from Canada and Mexico, for LNG,[1/] coal gas, SNG,[2/] tight sands gas,[3/] and for gas from nonconventional sources.[4/]

1/ LNG is an acronym for liquefied natural gas.

2/ SNG is synthetic natural gas made from natural gas liquids or oil products.

3/ The Committee's estimate for tight formations included gas from western tight sands and eastern Devonian shale.

4/ Nonconventionals include gas from occluded coal seams, peat, biomass, urban waste, geopressurized brine and other sources.

In order to assure adequate supplies, each of the Committee's supply pictures assumed that the U.S. will tap that important Alaskan gas resource. Although Alaska's contribution to total supplies varied, every scenario includes Alaskan gas. Each of our four supply pictures is set out below:

GAS SUPPLY SCENARIOS IN YEAR 2000 (TCF)

	SELF SUFFICIENCY	NORTH AMERICAN FOCUS	MODERATE WORLD IMPORTS	WORLD CONVENTIONAL GAS EMPHASIS
LOWER-48	12-14	12-14	12-14	12-14
SNG FROM LIQUID HYDROCARBONS	0.3	0.3	0.3	0.3
ALASKAN	3.0	3.0	1.5	3.0
CANADIAN	1.0	2.0	2.0	2.0
MEXICAN	0.1	2.0	2.0	2.0
LNG IMPORTS	0.7	0.7	2.5	4.0
COAL GAS	3.5	3.5	1.5-2.5	1.5-2.5
TIGHT FORMATIONS	1.5-5.0	1.5-4.0	1.5-3.0	1.5-3.0
MISC. NEW TECHNOLOGIES	1.0-2.5	1.0-2.5	1.0-2.5	1.0-2.5
TOTAL	23.1-30.1	26.0-32.0	24.3-30.3	27.1-33.1

I mentioned, just a few moments ago, that Alaska's total potential gas resources are 177 Tcf. Of this, at least 26 Tcf are proven North Slope reserves. The total Alaskan resource base breaks down as follows:

ALASKAN GAS RESOURCES[1]
(in Tcf)

Potential	Onshore[2]	Offshore[3]	Total
Probable	6	2	8
Possible	16	13	29
Speculative	28	80	108
Proved			
Reserves	-	-	32
Total Resource			
Potential	-	-	177

The United States cannot afford to ignore this energy resource when we continue to import between 5 and 6 million barrels of oil every day at great cost to our balance of payments and our security.

ALASKAN GAS IS IMPORTANT TO NATIONAL SECURITY

Our analyses (which are attached) show that natural gas can replace foreign oil quickly in the event of another supply disruption. The Alaskan pipeline could offset nearly 400,000 barrels of oil per day for the next 25 to 30 years. Additional planned compressor capacity could enable the pipeline to deliver enough gas to replace about 600,000 bbl/day.

The difference that Alaskan gas could make in our balance of payments is dramatic. Domestic gas could keep as much as $7 billion from flowing out of the country the very first year of the

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1/ Sources: Potential Gas Committee, Potential Supply of Natural Gas in the United States as of December 31, 1980, Golden, Colorado, Potential Gas Agency, Colorado School of Mines, 1981; and the 1979 statistics from A.G.A.'s Committee on Natural Gas Reserves.

2/ Onshore drilling depth to 30,000 feet.

3/ Offshore water depth to 1,000 meters.

pipeline's operation. Over the life of the system, well in excess of $100 billion in foreign oil payments (constant 1981 dollars) can be saved.

THERE WILL BE A STRONG DEMAND FOR ALASKAN GAS

Gas demand, in both traditional and nontraditional markets, will continue to grow. Gas will continue to compete with oil in the residential market. In 1980, we added 1.1 million households to the residential gas market. Nearly half of these households were converted from oil to gas heat. However, conservation, high efficiency appliances, gas heat pumps and pulse combustion furnaces may offset residential growth. Our industrial demand, however, continues to grow although we face many legal marketing restrictions (such as the Fuel Use Act and incremental pricing). Industrial gas demand to date is already up 8.2% over last year. For example, last year gas displaced 456,000 bbl/day of oil, (over 1978 consumption levels), principally in electric power plants that got exemptions from the Fuel Use Act. But because of legal and other restrictions, 286,000 barrels of foreign oil were used last year in place of gas. If gas demand restrictions were lifted, initial deliveries of Alaskan gas could help recapture this market. Furthermore, forecasts of unrestricted gas demand, from independent sources, range from 7 to 15 Tcf of industrial gas usage in the year 2000. For example, the National Energy Policy Plan III predicts that industrial gas use will grow about 1 trillion cubic feet - to 9.2 Tcf. This growth in industrial demand alone would absorb all the pipeline's Alaskan gas.

Furthermore, nontraditional gas demand will increase. Gas is a premium fuel with many uses. New markets are developing for gas-fired cogeneration and gas air conditioning. Gas is also a clean and inexpensive transportation fuel. Many fleet owners around the country have converted their vehicles to use both natural gas and gasoline with substantial financial and air quality benefits. Because it is the cleanest fossil fuel, gas can also offset air pollution from coal or oil facilities. In areas where air pollution is a problem, select use of a small proportion of gas with coal can actually increase coal use. In considering the need for this pipeline, we should keep the true value of Alaskan gas in mind. As supplies increase, more gas can be used for environmental purposes wherever a clean burning fossil fuel is needed.

SUMMARY

A.G.A. believes that Alaskan gas is a vital domestic resource. In the past, we strongly supported Alaskan gas production. We continue to support Alaskan production by respectfully urging this Committee to approve the proposed waivers.

Thank you for the opportunity to appear before you today. If you have any questions, I would be pleased to answer them.

ENERGY ANALYSIS

AGA
American Gas
Association

Policy Evaluation & Analysis Group
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209
703-841-8400

1981-1 February 20, 1981

ECONOMIC BENEFITS OF REPLACING OPEC OIL IMPORTS WITH NORTH AMERICAN PIPELINE GAS IMPORTS

A. Introduction

The record levels of inflation, high interest rates and weakness of the dollar in international currency markets experienced by the United States in recent years have been caused in part by our dependence on foreign oil. This dependence has not only become an important foreign policy and military consideration, but also poses a simply physical risk of supply interruption due to the large proportion of U.S. energy imports which must move through a few ports and sea lanes. While there has been much appropriate recognition of the benefits of substituting domestic energy supplies (including gas, coal, nuclear, solar and conservation) for oil imports, inadequate public consideration has been given to the economic and supply point diversification benefits which can accrue from replacing OPEC oil with increased imports of gas energy by pipeline from North America, and via liquefied natural gas (LNG) imports by tanker from throughout the world.

Imports of Canadian and Mexican gas could physically be increased in the near term (in the next several years) by a total of at least 1.0 Tcf/year, which would back out 500,000 barrels per day (B/D) of OPEC oil in stationary applications. The U.S. gas demand picture, however, is currently clouded by a number of regulatory impediments, including prohibitive portions of the Fuel Use Act (FUA), Title II incremental pricing of the Natural Gas Policy Act (NGPA), and the Public Utility Regulatory Policies Act (PURPA) rate design study. If these and other gas demand restrictions are lifted as part of an overall turn in U.S. policy toward encouraging gas substitution for oil, then substantial increases in importation of North American pipeline gas would accompany increased domestic gas production. Thus, while previous A.G.A. energy analyses have quantified the economic benefits of substituting LNG imports for oil imports, the purpose of this analysis is to examine the benefit to the U.S. economy of substituting North American pipeline gas imports for OPEC oil imports, specifically in the short-term.

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B. Executive Summary of Major Conclusions

Substitution of 1 Tcf of natural gas imported from Canada or Mexico for an equivalent amount of OPEC oil would produce a benefit to the U.S. as high as $1.3 to $3.5 billion annually in terms of an improved U.S. balance of trade and stabilizing impact on world oil prices. The assessment of benefit is derived in the following manner.

- Direct Effect on the U.S. Balance of Trade. $0.6 to $1.7 billion annually could be directly saved because a greater portion of a dollar spent on energy imports from Canada and Mexico is likely to be returned to the U.S., in the form of increased U.S. exports to these countries, than of a dollar spent on imported OPEC oil. This estimate assumes that (a) Canada and Mexico on one hand, and OPEC on the other hand, each spend an equal portion -- 20% -- of an additional dollar of income on imports; and (b) both approximately maintain their historical proportion of imports from the U.S. vis-a-vis the rest of the world -- 70% for Canada and Mexico, and 18% for OPEC.

- Effect on World Oil Prices. $0.7 to $1.8 billion could be saved as a result of the reduction in the demand for OPEC oil which, if accomplished as part of a larger overall program to lessen demand for OPEC oil, could help moderate OPEC oil price increases. For a reduction of 500,000 B/D from a six million B/D level in 1981, the oil price could be $0.34 to $0.90 per barrel lower, assuming that the price elasticity of demand ranged from -0.61 to -0.07, and that the price elasticity of supply was 0.25. In other words, the cost of all U.S. energy imports would decrease relative to the cost which would prevail without the reduction in oil demand, resulting in direct savings in foreign energy payments of $124 to $328 million annually for each remaining million B/D of oil imported by the U.S. This benefit would also accrue if imports of LNG -- even from OPEC countries -- were substituted for OPEC oil.

- Effect on the Value of the Dollar. An additional benefit which would accrue from substituting Canadian or Mexican gas for OPEC oil is an increase in the stability of the U.S. dollar. Over the 1973-1979 period, OPEC accumulated a current account surplus of $255 billion (cumulative), nearly all earned in U.S. dollars. With its dollar holdings already sizable, OPEC is much more likely to want to convert a surplus dollar into another currency than are Canada and Mexico with their more limited dollar holdings, thus increasing the supply of dollars in the foreign exchange market, and possibly depressing the price (exchange rate). Moreover, as implied above, a greater proportion of an additional dollar of OPEC income is likely to become surplus than is an additional dollar of Canadian and Mexican income.

This analysis excludes any second-order domestic or international economic effects, as well as any impact on domestic energy prices, that could arise as a result of the U.S. increasing its North American gas imports.

C. Background

In the fourth quarter of 1977 the value of the U.S. dollar declined more than 6% on international markets.[1] A further decline of more than 10% was experienced before President Carter's November 1978 announcement of monetary policy and currency intervention measures to support the dollar.

The cause of this dramatic slide in the value of the dollar has been much debated. Among the culprits cited have been inflation, the differential in economic growth rates between the U.S. and its trading partners, increasing U.S. oil imports, and excessive speculation in the foreign exchange market. However, the blame is most often placed simply on the deterioration in the U.S. current account balance (i.e., balance on merchandise trade plus services and transfer payments). Exhibit 1 illustrates the close correlation between the value of the dollar and the U.S. balance on current account.[2]

A major contributor to the deterioration in the current account balance was an increasing oil import bill. Therefore, reducing dependence on OPEC oil is frequently advanced as a means of protecting the foreign exchange value of the dollar. Since the price of natural gas imports is now more closely tied to the OPEC oil price, it is sometimes said to be of no benefit as regards foreign exchange to substitute natural gas imports for OPEC oil imports. This conclusion is erroneous because it ignores three important facts:

(1) The dollar decline was not caused by a simple relationship between current account balances and foreign exchange rates, rather by the interaction of factors such as an upward shift in expectations concerning the U.S. inflation rate and U.S. oil imports needs, a downward shift in expectations of future growth rates of

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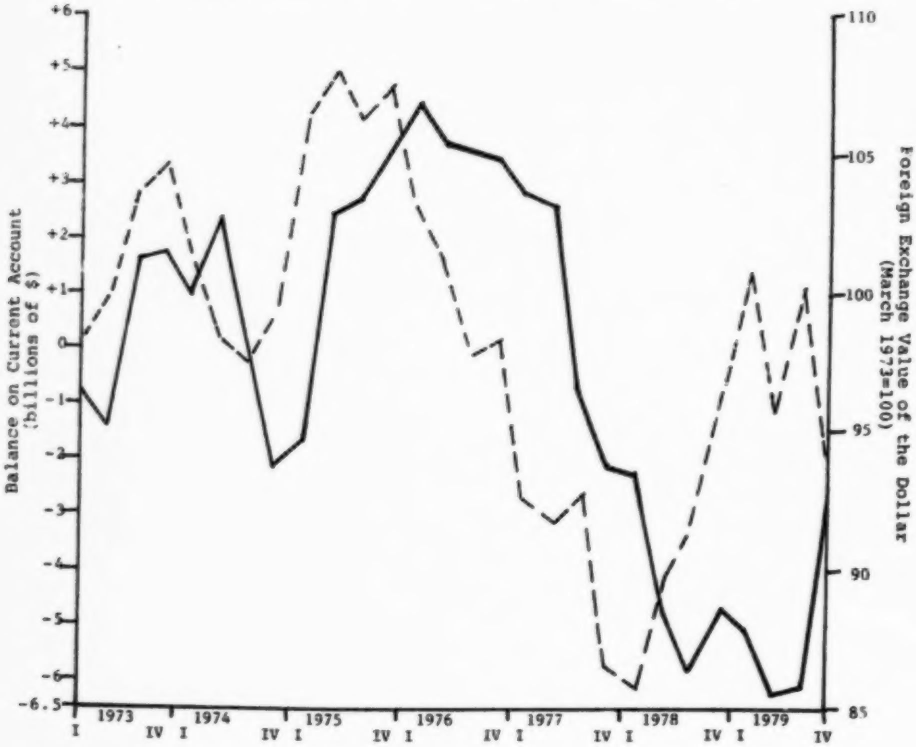
[1] The value of the dollar was measured as an index of the trade-weighted average exchange rate against the currencies of ten countries - Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom.

[2] During 1979, the foreign exchange market was sufficiently skeptical of the long-term ability of the U.S. to reduce its deficit - and its inflation rate - that the dollar remained depressed even though the current account was in surplus for two quarters.

Exhibit 1

COMPARISON OF MOVEMENTS IN THE FOREIGN EXCHANGE VALUE OF THE DOLLAR AND THE U.S. BALANCE ON CURRENT ACCOUNT



Legend: ----- Balance on Current Account
—— Foreign Exchange Value of the Dollar

Note: The foreign exchange value of the dollar is graphed with a one period lead to allow for reporting delays in balance of payments data, as well as the fact that the foreign exchange market looks for a consistent pattern, and not a one-month aberration before reacting.

Source: U.S. Department of Commerce, Survey of Current Business, various issues.

U.S. trading partners (i.e., the U.S. ability to export), as well as the increased supply of dollars which resulted from U.S. current account deficits.

(2) There are intrinsic differences between imports from OPEC and non-OPEC countries which impact some of the factors mentioned above. These differences include the marginal propensity to import - both in total and from the U.S. in particular, and existing dollar holdings.

(3) Changes in the U.S. demand for oil imports impact the world price of oil.

D. Methodology and Assumptions

This analysis is largely qualitative, relying on historical relationships and quantitative examples to illustrate the relative economic advantages to the U.S. of importing natural gas from Canada and Mexico rather than oil from OPEC. No definitive numerical forecast is made of these advantages for two reasons: (1) estimates of some of the relationships do not exist; and (2) even if they did, the interactions are sufficiently complex as to require simultaneous solution via a computer model, but a world model that successfully integrates these factors is not currently available.

The hypothetical examples which are used in the analysis are premised on the following assumptions:

- U.S. imports from Canada and Mexico could be increased significantly in the near term -- by at least one annual Tcf (see Appendics A and B).
- An additional Tcf of natural gas would displace a Btu equivalent increase in crude oil imports from OPEC -- 0.5 million barrels per day (MMB/D).
- In the parity case, gas would be priced at the border at \$6.03/MMBtu; the oil at \$35.00/barrel. Note that these are exactly equivalent on a Btu basis. For parity to the final consumer the gas price at the border would be lower since transportation costs are higher for gas than oil.
- In the current pricing example, Canadian gas is assumed to be priced at \$4.94/MMBtu at the border, Mexican gas at \$4.82/MMBtu, along lines of recent announcements by both governments.
- If the U.S. did not import the additional 1 Tcf of North American gas imports or the 0.5 MMB/D of OPEC oil, it would not be produced within the short-term time frame of this analysis. Further, the price of the remaining

supplies would be unchanged or would fall. Therefore, the national income of the producing country would decrease if the U.S. did not import the additional supply of energy.

E. The Marginal Propensity to Import - from the U.S.

Canada and Mexico have historically obtained a very high proportion of their total imports of goods and services from the U.S. - 70%, on average, over the 1973-1979 period. In contrast, the OPEC countries imported only 24% from the U.S. in 1973 and 1974. By 1979, U.S. imports accounted for only 15% of total goods and services imported by OPEC (see Exhibit 2).

If the U.S. were to purchase an additional Tcf of gas from Canada and Mexico, at a parity price, the combined national incomes (Gross National Product) of those countries would increase by $6 billion.[3] Alternatively, the U.S. could purchase 0.5 MMB/D of oil from OPEC, increasing their national income by the identical sum of $6 billion.[4] Assuming for the moment that for each additional dollar of income, Canada, Mexico and OPEC would import an additional $0.20 of goods and services from the rest of the world (i.e., have a marginal propensity to import of 0.2), total imports of Canada and Mexico or of OPEC would increase $1.2 billion (0.2 x $6 billion).

If the historical proportions hold true on the margin, however, then Canada and Mexico would have a marginal propensity to import from the U.S. of 0.14 (0.2 x 70%), but OPEC of only 0.036 (0.2 x 18%).[5] Therefore, although the U.S. energy import bill would remain unchanged, U.S. export revenues would increase $0.8 billion if gas were imported from Canada and Mexico compared to only $0.2 billion if oil were imported from OPEC. In other words, the projected 1981 current account deficit of $4.9 billion would be reduced at least $0.6 billion by substituting gas imports for oil imports.[6]

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[3] $6 billion represents only the direct income effect. In fact, income would increase by considerably more due to additional employment created by investment in and operation of the export projects.

[4] As is the case with Canada and Mexico, $6 billion represents only the direct income effect. Indirect effects are likely to be smaller than for Canada and Mexico since the oil would already be flowing, but at a slower rate.

[5] As Canada and Mexico expand their imports, it is certainly possible that a greater than historical proportion will be purchased outside the U.S. However, the proportion is unlikely to approach OPEC levels in the foreseeable future.

[6] Projection of current account deficit from Wharton Econometric Forecasting Associates, Inc. Annual and Industry Forecasting Model, Post-Meeting Control Solution, November 1980.

Exhibit 2

COMPARISON OF RELATIVE TENDENCIES TO IMPORT FROM THE U.S. CANADA AND MEXICO VERSUS OPEC

	Canadian Imports of Goods and Services			Mexican Imports of Goods and Services			OPEC Imports of Goods and Services		
	Total ($ billion)	From U.S. ($ billion)	U.S. as a Percent of Total (%)	Total ($ billion)	From U.S. ($ billion)	U.S. as a Percent of Total (%)	Total ($ billion)	From U.S. ($ billion)	U.S. as a Percent of Total (%)
1973	$30,947	$21,127	68%	$6,329	$4,369	69%	$35,978	$8,557	24%
1974	41,937	27,174	65	9,365	6,793	72	59,464	14,473	24
1975	44,819	31,850	71	10,541	7,818	74	85,249	16,472	19
1976	50,685	35,968	71	10,767	7,373	68	104,865	19,425	18
1977	53,837	38,181	71	10,235	7,438	72	128,463	21,975	17
1978	59,400	41,930	71	14,510	9,921	68	149,855	24,383	16
1979	70,343	50,091	71	20,928	14,405	69	165,330	24,921	15
1973-1979	$351,968	$245,321	70%	$82,675	$58,117	70%	$729,204	$130,206	18%

Sources: Total Imports - International Monetary Fund, International Financial Statistics as reported in the Wharton Econometric Forecasting Associates, Inc. international databases. Data were missing for Iran, Iraq and Kuwait for some years, and were estimated by applying a ratio of value of merchandise imports to imports of goods and services on a balance of payments basis derived for years for which all data were available. A judgmentally-derived, representative OPEC ratio was used for Qatar for which no balance of payments data were available.

Imports from U.S. - U.S. Department of Commerce, Survey of Current Business. Canadian and Mexican data from June issues, U.S. International Transactions, Tables 10 and 10A. OPEC data from March 1980 issue, p.53.

The improvement in the current account would, in fact, be even greater than described above because Canadian and Mexican gas is priced below parity. One Tcf of Canadian gas at the current $4.94/MMBtu would cost the U.S. $4.9 billion in import expenditures and return $0.7 billion ($4.9 billion x 0.2 x 70%) in export revenues. Similarly, Mexican gas would cost $4.8 billion and return $0.7 billion. Thus, the U.S. would gain an additional $0.5 billion in export earnings while saving $1.1-$1.2 billion by importing Canadian and Mexican gas rather than OPEC oil in the current pricing scenario (see Exhibit 3). Total savings are thus $1.6-$1.7 billion at current prices, given the assumed marginal propensities to import.

F. The Marginal Propensity to Import - in Total

In the preceding hypothetical example, Canada, Mexico and OPEC were assumed to have a marginal propensity to import (MPI) of 0.2. Despite great fluctuation of these ratios in recent years -- particularly for OPEC -- it is not unreasonable to expect the MPI's for OPEC and Mexico to be in the 0.2 range in the short term (zero to five years), and perhaps slightly higher for Canada.

The quadrupling of oil prices in the wake of the 1973-1974 OPEC embargo resulted in a large and unexpected OPEC current account surplus - $68 billion in 1974. During the next four years, many OPEC countries instituted grandiose projects for rapid industrialization which, when combined with only small increases in real oil prices and slow growth of oil demand, reduced the surplus to $5 billion in 1978. The marginal propensity to import during the 1974-1978 period compared to 1973 was .73 (see Exhibit 4).

This trend changed abruptly in 1979. The warning of the Iranian revolution against too rapid social change combined with the number of project failures during the preceding four years resulted in sharply limited import growth. These factors should continue to prevent further rapid growth of imports in the future, resulting in OPEC's MPI remaining near its 1979 level of .18.

7/ The MPI's reported in this section are only very rough approximations due to difficulties in data availability. The income measures are not completely comparable -- Gross National Product was used for Canada, Gross Domestic Product for Mexico, and export revenues plus a crude measure of return on investment for OPEC. Further, the MPI's were estimated on the basis of total annual changes in imports and income when they should be measured as the response of imports to a very small change in income. Finally, the MPI's should be measured in real terms due to the differential in inflation rates between the income of the importing country and the value of its imports.

EXHIBIT 3

ILLUSTRATION OF BALANCE OF TRADE BENEFIT TO THE U.S. OF SUBSTITUTING IMPORTS OF CANADIAN AND MEXICAN GAS - AT CURRENT PRICES AND AT PARITY PRICES - FOR OPEC OIL

	Assumptions			Impact on U.S. -- Billion $ Per Quadrillion Btu		
	(1) Energy Cost ($/MMBtu)	(2) Percent of Additional Income Spent on Imports (%)	(3) Percent of Additional Imports Purchased from U.S. (%)	(4) Additional U.S. Expenditures on Imported Energy (1)x10^{15} MMBtu	(5) Additional U.S. Export Revenues (4)x(2)x(3)	(6) Change in U.S. Balance of trade (5)-(4)
At Current Prices						
Canada	$4.94	20%	70%	$4.9	$0.7	$-4.2
Mexico	4.82	20	70	4.8	0.7	-4.1
OPEC	6.03	20	18	6.0	0.2	-5.8
Difference:						
Canada vs. OPEC	$1.09	0 percentage points	52 percentage points	$1.1	$0.5	$+1.6
Mexico vs. OPEC	$1.21	0 percentage points	52 percentage points	$1.2	$0.5	$+1.7
At Parity Prices						
Canada/Mexico	$6.03	20%	70%	$6.0	$0.8	$-5.2
OPEC	6.03	20	18	6.0	0.2	-5.8
Difference	$0	0 percentage points	52 percentage points	$0	$0.6	$+0.6

EXHIBIT 4

ESTIMATED MARGINAL PROPENSITIES TO IMPORT OF CANADA, MEXICO AND OPEC

	Canada			Mexico			OPEC		
	Income[1] (billion $)	Imports of Goods and Services (billion $)	Estimated Marginal Propensity to Import[2] (%)	Income[3] (billion $)	Imports of Goods and Services (billion $)	Estimated Marginal Propensity to Import[2] (%)	Income[4] (billion $)	Imports of Goods and Services (billion $)	Estimated Marginal Propensity to Import[2] (%)
1973	$124.1	$30.9	-	$49.6	$4.4	-	$39.5	$36.0	-
Average: 1974-1978	177.1	50.1	-	74.4	7.9	-	134.7	105.6	-
1974-1978 Average vs. 1973	$53.0	$19.2	36.2%	$24.8	$3.5	14.1%	$95.2	$69.6	73.1%
1978	$193.7	$59.4	-	$92.6	$14.5	-	$151.9	$149.8	-
1979	222.8	70.3	-	119.9	20.9	-	239.3	165.3	-
1979 vs. 1978	$29.1	$10.9	37.4%	$27.3	$6.4	23.4%	$87.4	$15.5	17.7%

Note: All data from International Monetary Fund, International Financial Statistics as reported in the Wharton Econometric Forecasting Associates, Inc. international databases unless otherwise noted.

1/ Gross National Product. Reported in Canadian dollars and converted by application of exchange rates.

2/ The estimated marginal propensities to import represent only very rough approximations. MPI's were calculated for 1974-1978 as an average because of great annual variations during this period - primarily as a result of the large 1974 OPEC oil price increase and subsequent adjustment, as well as the 1976 devaluation of the Mexican peso. This introduces considerable error since the MPI should properly be measured as the response of imports to small changes in income. Further, the MPI should be calculated in real terms due to the differential in inflation rates between the income of the importing country and the value of its imports, but reliable price deflators were not available for many OPEC countries.

3/ Gross Domestic Product. Reported in Mexican pesos and converted by application of exchange rates.

4/ Estimated by summing exports and approximated return on investment. The latter was calculated by applying the three-month Eurodollar interest rate for a given year to the outstanding current account surplus, i.e., the current year's surplus plus the accumulated surplus of prior years.

5/ Data on imports were missing for Iran, Iraq and Kuwait for some years, and were estimated by applying a ratio of value of merchandise imports to imports of goods and services on a balance of payments basis derived for years for which all data were available. A judgmentally-derived, representative OPEC ratio was used for Qatar for which no balance of payments data were available.

On the other hand, both Canada and Mexico require imported capital goods and technology in order to develop their industrial base. Canada, although a developed country, "is still heavily dependent on raw and semi-finished export earnings to finance its growing need for imported high technology and manufactured end products."[8] Mexico's National Industrial Development Plan "calls for a fast and massive development of Mexican industry, largely by private enterprise, and the transformation of Mexico from a net importer of industrial goods into a net exporter."[9] This development program has been largely responsible for the increase in Mexico's MPI from its 1974-1978 average of 0.14 to its 1979 level of 0.23, and may result in further increases over the next few years. Although in the long run -- as the industrial development programs of Canada and Mexico succeed -- their MPI's will decline, import growth should remain strong for at least the next five years.

Not only do Canada and Mexico plan more rapid import growth than OPEC, but they are more in need of income to finance those imports. As Exhibit 5 illustrates, the foreign exchange earnings of these two countries have not kept pace with their import expenditures, resulting in consistent deficits in their balance on current account since 1974. The deficits have beer financed by borrowing abroad and by drawing on reserve assets (basically comparable to a savings account with overdraft privileges used to meet foreign exchange obligations). Thus, lack of income could be a constraint to increasing imports.

This is clearly not the case with OPEC countries. At year-end 1979, they had an accumulated current account surplus of $255 billion. An additional $115 billion is estimated to have been added to this total during 1980. Moreover, they have been unable to find sufficient investment opportunities to absorb all their surplus capital, so they have accumulated over $80 billion in reserve assets since 1973 (see Exhibit 6). If OPEC was in need of additional imports it would not be necessary to increase their income in order to finance them.

In light of the foregoing discussion, it is likely that the estimated 1979 level of MPI's will approximately prevail, at least in the short-term. Therefore, for purposes of this analysis, inspection of Exhibit 4 indicates that an MPI of 0.2 for Canada, Mexico and OPEC represents a conservative assumption.

8/ Daryll G. Waddingham, The Canadian Balance of Payments to the Year 2000, Royal Bank of Canada, November 1979, p. 65.

9/ James Flanigan, "Mexico's Drive to Industrialize," *Forbes*, October 19, 1979, p.42.

Exhibit 5

COMPARISON OF BALANCE ON CURRENT ACCOUNT CANADA AND MEXICO VERSUS OPEC

(billions of U.S. dollars)

	Canada	Mexico	OPEC
1973	$0.1	$-1.4	$7
1974	-1.5	-2.9	68
1975	-4.7	-4.0	35
1976	-3.9	-3.4	40
1977	-4.1	-1.8	32
1978	-4.4	-2.6	5
1979	-4.4	-4.5	68
1973-1979	$-22.9	$-20.6	$255

Sources: Canada and Mexico - International Monetary Fund, Balance of Payments Yearbook, various issues.

OPEC - International Monetary Fund, Annual Report 1980.

Exhibit 6

COMPARISON OF CHANGES IN RESERVE ASSETS CANADA AND MEXICO VERSUS OPEC (billions of U.S. dollars)

	Canada	Mexico	OPEC
1973	$-0.9	$0.06	$3.7
1974	-0.03	0.02	31.6
1975	-0.2	0.2	11.8
1976	0.6	-0.7	8.8
1977	-1.4	0.4	10.3
1978	-0.4	0.4	-6.6
1979	-0.8	0.4	21.5
1973-1979	$-3.13	$0.78	$81.1

Sources: Canada and Mexico, and OPEC (1973-1975) - International Monetary Fund, Balance of Payments Yearbook, various issues.

OPEC (1976-1979) - International Monetary Fund, Annual Report, various issues.

G. The Monopsony Effect

The preceding sections have demonstrated that the U.S. balance of trade would improve due to increased export earnings if the U.S. replaced OPEC oil with imports of natural gas from Canada and Mexico, even at a Btu parity price. In fact, the balance of trade should be further improved by a reduction in expenditures for energy imports.

It is widely agreed that changes in the U.S. demand for oil imports have some impact on the world oil price. This is known as the monopsony effect.[10] However, the magnitude of the price impact for a given change in demand is subject to considerable uncertainty. The impact is determined by the price elasticities of demand and supply - for which there are wide ranges of estimates.

Hypothetical price impacts for reducing oil import demand 0.5 MMB/D in 1981 were calculated assuming a short-term price elasticity of demand of -0.07 and -0.61, and a short-term price elasticity of supply of 0.25.[11] World oil consumption was assumed to be 60.5 MMB/D (equivalent to the estimated 1980 consumption level) at a price of $35.00/barrel. The estimated reduction in price ranged from $0.34/barrel for a demand elasticity of -0.61 to $0.90/barrel for a demand elasticity of -0.07 (see Appendix C for derivation).

The price reduction would reduce U.S. import expenditures by $0.34-$0.90 times the total volume of imported oil and gas. Further, it would reduce the cost of all domestic energy supplies which are tied to the price of world oil. This reduction in U.S. energy costs would not only improve the balance of trade, but also directly reduce inflation through lower industrial production costs and lower consumer fuel costs.[12]

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[10] This is not to say that prices will decline in the face of demand reduction (although discounts might be offered were the reduction sufficiently large and sudden), but rather that prices will rise somewhat more slowly. The effect is particularly pronounced in the event of a supply disruption occurring in only a few specific countries, since the lower base demand would probably result in some excess capacity among the remaining suppliers.

[11] Elasticity assumptions taken from Rodney Lemon, "The Direct and External Benefits of Reducing Oil Imports," Energy Topics (Chicago, Illinois, Institute of Gas Technology, October 1, 1979).

[12] These benefits would also accrue if imports of LNG - even from OPEC countries - were substituted for OPEC oil.

Clearly, the reduction in demand for OPEC oil resulting from increased North American pipeline gas imports would not, by itself, be likely to have a measurable impact on OPEC oil prices. Producers could, in fact, choose to simply reduce production while keeping prices constant or while raising prices to keep revenue constant. In order for the monopsony effect to have a good probability of effectiveness, increased North American gas imports must be undertaken as part of a larger overall program of reducing demand for OPEC oil.

H. Eurodollar Supply and Demand

Of an identified financial surplus of $236 billion invested by the oil exporters over the 1974-1979 period, only $55 billion was invested in the U.S. - in bank accounts, government and corporate securities, and direct investments such as real estate.13/ Thus, during this period, OPEC held 181 billion more U.S. dollars than they wanted to invest in the U.S.

$11 billion was converted to sterling and deposited in banks in the United Kingdom or otherwise invested there. $90 billion was deposited in banks in the Eurocurrency market.14/

The Eurocurrency market is estimated to have a gross size of $900 billion, but when interbank deposits are netted out, to be only $400 billion.15/ U.S. dollars comprise approximately 80% ($320 billion) of the market.

The deposit of $90 billion was thus a sizable infusion into the Eurodollar market. Unfortunately for the dollar, OPEC did not want to hold the entire amount in dollars, but diversified among deutschemarks, yen, Swiss francs and other currencies. By late 1977, U.S. current account deficits and OPEC diversification had resulted in a large supply of dollars for which there was no demand. The U.S. inflation rate was worsening, current account deficits seemed very likely to continue growing, and most major countries already held large stocks of dollars. Since supply exceeded demand, the price of the dollar -- its exchange rate -- fell.

13/ Data on disposition of the surplus are from: John Hein, "Recycling Oil Surpluses: A Look at 'OPEC II'" (The Conference Board, August 1980). The data include investments by Bahrain, Brunei, Oman, and Trinidad and Tobago, as well as the 13 OPEC members.

14/ Eurocurrency is a bank deposit in a currency other than that in which the bank is located. Thus, any dollar deposited in a bank outside the U.S. is a Eurodollar.

15/ Statement of Henry C. Wallich reported in Federal Reserve Bulletin, August 1979, p. 612.

In the future, as the price of oil continues to increase, OPEC's dollar surpluses will continue to mount. With its dollar holdings already sizable, OPEC is much more likely to want to convert a surplus dollar into another currency than are Canada and Mexico with their more limited dollar holdings. Moreover, as implied in Section F, a greater proportion of an additional dollar of OPEC income is likely to become surplus than is an additional dollar of Canadian and Mexican income. Therefore, substitution away from OPEC imports will reduce the supply of Eurodollars, contributing to exchange rate stability.16/

16/ Substitution of LNG imports from non-OPEC countries for OPEC oil would provide similar benefits.

APPENDIX A

CANADIAN GAS IMPORTS

Canadian Resource

Natural gas resources in Canada are as varied as those in the U.S., and include conventional natural gas formations, both non-associated and associated-dissolved, and unconventional resources, such as tight sands. Drilling activity, as in the U.S., continues to emphasize the less expensive traditional resources, but more recently there has been an increased interest in the more costly frontier areas of deep offshore in the Atlantic and in the northern regions of the Mackenzie Delta, Beaufort Sea and Arctic Islands. Gas resources in these regions differ only in the cost of development, in that the areas are inhospitable; otherwise these are conventional gas reservoirs.

Established reserves for year-end 1979 as estimated by the Canadian Petroleum Association are about 89 Tcf.1/ The Canadian National Energy Board (NEB) has recently raised its estimates of marketable gas reserves from 66.1 Tcf at year-end 1978 to 71.8 Tcf as of year-end 1979.2/ NEB estimates of ultimate potential marketable gas resources in conventional producing areas, at year-end 1978, range from 127 Tcf to 157 Tcf.3/ This potential could be substantially increased if the "Deep Basin" area of Alberta and British Columbia proves to be as large as some industry experts estimate. In fact, geological studies of the Deep Basin by Canadian Hunter Exploration, Ltd. indicate a potentially recoverable resource of 440 Tcf.4/ Currently, NEB includes only 1 Tcf of established reserves in the Deep Basin. Since the Deep Basin is a tight formation, new technology and improved economics will be necessary to increase reserve estimates in the Basin.

1/ American Gas Association, et al., Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada as of December 31, 1979; Vol. 34, June 1980.

2/ Oil and Gas Journal, December 17, 1979.

3/ National Energy Board, Canadian Natural Gas: Supply and Requirements, February 1979, Table 2-3.

4/ J.K. Gray, Natural Gas: Canada's Economic Ace in the Hole, October 23, 1979.

Estimates of marketable gas reserves are summarized in Table A-1. In addition, industry estimates for cumulative reserve additions by the year 2000 range from 30 to 50 Tcf from the Arctic regions and 18-150 Tcf from Atlantic regions. Estimates by the Canadian Geological Survey of the ultimate potential from these frontier areas range up to 300 Tcf.5/

However the resource potential is viewed, the above estimates indicate Canada has adequate resources to meet its own domestic requirements for at least the next decade or more, and will therefore be able to continue or increase gas exports to the U.S. without compromising its own energy availability.

Canadian Production

The availability of Canadian gas for export to the U.S. depends on both the development of new supplies and Canadian gas export policy. The production problems of Canada in developing these new resources are similar to those of the U.S. in that much of the potential lies in remote areas and offshore.

Development of the Arctic regions will require the construction of technically advanced and costly gas transportation systems to meet the harsh conditions of the Arctic environment. At present, established reserves in these areas are not sufficient to meet the threshold economic volumes necessary to justify the high costs.

Although Canada's gas resources are adequate to continue or expand exports to the U.S., the actual volumes exported will rely on the policies adopted by Canadian and U.S. regulatory agencies toward increasing exports. Canadian policy may reflect policy concerns based on the rate of resource development, the expansion of the Canadian domestic market, the costs of frontier gas development and the price of alternate energy supplies. Current Canadian policy favors increasing exports, although on a lesser scale than that urged by the Canadian gas industry.

Drilling and exploration activities in Canada are continuing at a rapid pace. In 1979, 7,599 wells were drilled. That was 621 wells more than in 1978.6/ Current exploration activities are concentrated in the western provinces, including the Elmworth Deep Basin with some activity off the east coast.

5/ Canadian Natural Gas: Supply and Requirements, supra, at Table 2-12, 2-13.

6/ The Oil Daily, February 15, 1980, p. 3.

The NEB has estimated that production capability from marketable gas reserves at year-end 1978 is adequate to supply up to 3.8 Tcf in 1981, declining to 1.9 Tcf in the year 2000.[7] These estimates exclude such resources as:

- established reserves not considered marketable due to the lack of transportation systems
- resources in such frontier areas as the Mackenzie Delta, Beaufort Sea, Arctic Island, and east coast offshore areas, and
- new resources which remain to be discovered.

These categories could include major gas volumes in future years. For example, estimates of the gas production potential from the Mackenzie Delta range from .6 Tcf/yr. to 3.2 Tcf/yr. by the year 2000.[8]

Given the above potential supply and resource estimates, and the currently proposed export expansion applications by producers and U.S. purchasing pipeline companies, Canada could continue to export gas to the U.S. at the current level of 1 Tcf/yr. and probably increase this level to 2 Tcf in the 1990's under a national policy of developing frontier areas.

The NEB, in December 1979, authorized gas exportation of 3.75 Tcf over an eight-year period (1980-1987) in addition to the 9.4 Tcf remaining under existing licenses.

High-side estimates for 1990 and subsequent years are based on anticipated increases in reserve estimates for frontier areas.

Major policy related assumptions for the low and high cases in Table A-2 are:

- The low case assumes that Canadian regulatory authorities adopt a policy to maintain gas exports at current levels. Current contracts would either be renewed or new contracts and licenses of equivalent volumes approved.
- The high case assumes a Canadian policy to develop fully the frontier areas and expand exports to the U.S. It also assumes that U.S. regulatory agencies authorize new import applications.

7/ The Oil Daily, February 21, 1980, p. 1.

8/ Canadian Natural Gas: Supply and Requirements, supra, at Table 2-9, 2-14.

Table A-1

MARKETABLE NATURAL GAS

REMAINING ESTABLISHED RESERVES IN CANADA[1]

Provinces	1979 Net Production (Bcf)	Remaining Reserves (Bcf)
Alberta	1,901	58,995
British Columbia	305	7,430
Saskatchewan	46	1,270
Mainland Territories	19	581
Ontario	14	308
Mackenzie Delta-Beaufort Sea	-	6,598
Arctic Islands	-	14,248
Other Eastern Canada	0.1	12
TOTAL	2,285	89,442

1/ Canadian Petroleum Association estimates from Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada as of December 31, 1979, Vol. 34, June 1980.

2/ Totals may not add due to rounding.

Table A-2

NATURAL GAS IMPORTS FROM CANADA

Year	Volumes in Tcf Low	High
1980	1.0	1.0
1990	1.0	1.7
2000	1.0	2.0

APPENDIX B

MEXICAN GAS IMPORTS

Mexican Resource

Natural gas in Mexico is from conventional gas resources, both associated with oil and non-associated. Oil and gas fields have been discovered along most of the Gulf of Mexico coastal plain region. A significant non-associated gas province, the Gulf of Sabinas Basin, is located in Northern Mexico.

For the foreseeable future, most of the gas produced will be in association with oil. Mexico's oil export policy implies significant gas production.

Mexico has tremendous reserves of crude oil and natural gas. As of March 1980, proven reserves were estimated to be over 50 billion barrels of oil and gas in oil equivalents. Probable and potential reserves are estimated to be at least 240 billion barrels. The Mexican government estimates that 29 percent of proven reserves are gas reserves. This means that 84 Tcf of gas is proven and, if the 29 percent can be applied to the probable and potential reserve estimates, an additional 400 Tcf is potentially available.[1/] These estimates compare to U.S. proved reserves estimates of 195 Tcf[2/] and additional potential resources of 1,019 Tcf.

Mexican Production

The primary limiting factors to the development of the vast Mexican potential are the limited capital and technical manpower available for such work. As the oil and gas production increases, both manpower and capital limitations should be eased. The quantity of gas produced for export will be determined by three factors:

- results of Mexico's domestic program to increase natural gas consumption,
- policy considerations relating to the inflationary effects of large amounts of dollars entering the economy, and
- Mexican and U.S. agreements setting the allowable price and volume of U.S. imports.

[1/] Minister Florencio Acosta, The Role of Oil in the Mexican Development Plans, Embajada de Mexico, June 12, 1979.

[2/] American Gas Association, et al., Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada as of December 31, 1979; Vol. 34, June 1980.

Mexico has implemented an aggressive campaign to attract new industrial users of natural gas. Although this campaign may increase domestic demand substantially, it is doubtful that the Mexican domestic demand can increase as rapidly as gas production.

The optimum price and volume of the Mexican imports are difficult to negotiate. As a result, political pressures in both countries are major impediments to increasing the flow of imported gas.

The major current program relating to the importation of Mexican gas is the October 19, 1979 gas-purchase-and-sale agreement between PEMEX and Border Gas (a joint venture corporation of six pipeline companies). This agreement became effective January 1, 1980 and gas began flowing into the United States on January 15, 1980. The agreement called for 300 MMcf per day to be delivered to Border Gas at a price of $3.625 per Mcf. Under the contract, this price would be adjusted quarterly in accordance with a composite index of world crude oil prices based on oil from the Middle East, the North Sea, and Venezuela. However, PEMEX asked for a price of $4.47 per MMBtu so as to achieve parity with gas imports from Canada. On March 27, ERA and FERC granted authority to Border Gas to pay that price.

The gas being imported from Mexico comes from the northern fields, which formerly provided gas to Monterrey. Now, the Monterrey markets are served by the Reforma fields in southern Mexico via a new 48-inch "National Trunk" pipeline system. A throughput to Monterrey of .8 Bcf/d is currently possible with an expansion to 2.0 Bcf/d if additional compressor stations are built.

Other new pipeline investment includes an extension of the 48-inch line to the U.S. border, a looping of the line from the Reforma fields to Mexico City and an extensive pipeline grid connecting onshore fields in the Reforma and Campeche Bay areas.

The major areas of drilling activity are:

- the Reforma area in the states of Tabasco and Chiapas in southern Mexico,
- the Bay of Campeche, an oil province offshore adjacent to the Reforma area,
- the Chicontepec area located in east central Mexico near Tampico on the coastal plain of the Gulf of Mexico, and

- the Sabinas Basin in northern Mexico. Sabinas wells are the major producing non-associated gas wells in Mexico today. However, new drilling activity in this area is at a low ebb.

Gas production has been increasing rapidly. In the 1960's production was about 1,350 MMcf/d. By the 1970's production was over 2,100 MMcf/d. Current production is estimated to be over 3.5 Bcf/d.[3] Gas flaring has been steadily decreasing as a result of increased domestic use and the export of gas to the U.S.

With proven reserves estimated at 84 Tcf and additional gas resources that may be as high as 400 Tcf, it is clear that Mexico could produce greater quantities of gas.

The gas-to-oil ratio has been steadily increasing. Older fields average about 1,200 cf of gas per barrel of oil. Newer onshore fields are closer to 2,000 to 1.[4] This increase in gas-oil ratio implies that as Mexican oil production increases, production of gas will increase even faster.

In view of the production capability and the economic benefits of exporting gas to the United States, A.G.A. has estimated the range of production available for export as shown in Table B-1. As shown, it is possible that political considerations and domestic Mexican demand for gas could cause exports to remain at the 0.1 Tcf level through the year 2000.

3/ Ing. Jorge Diaz Serrano, Forty-second Anniversary Speech, Guadalajara, Jal, Mexico, March 13, 1980.

4/ Elizabeth Anne Moler and James Thomas Bruce III, Mexico: The Promise and Problems of Petroleum, February 1979. (Printed at the Request of Henry M. Jackson, Chairman -- Committee on Energy and Natural Resources, U.S. Senate.)

Table B-1

NATURAL GAS IMPORTS FROM MEXICO

Year	Tcf/yr.
1980	0.1
1990	0.1-1.0
2000	0.1-2.0

APPENDIX C

DERIVATION OF REDUCTION IN WORLD OIL PRICE RESULTING FROM 0.5 MMB/D REDUCTION IN U.S. OIL IMPORTS

1. Assuming equilibrium world oil demand of 60.5 MMB/D at a price of \$35.00/barrel, a decrease in demand of 0.5 MMB/D, and an elasticity [i.e., $(\Delta Q/Q)/(\Delta P/P)$] of -0.07, a linear demand equation can be calculated as follows:

$$(\Delta Q/Q)/(\Delta P/P) = -.07$$
$$\Delta P = (-.5/60.5)/(-.07/35.00)$$
$$= 4.13$$

Equation slope = $\Delta Q/\Delta P = -.121$
Equation intercept = $Q - (\Delta Q/\Delta P)P = 64.74$
$Q_D = 64.74 - .121P$

2. Assuming a supply elasticity of +0.25, a linear supply equation can be similarly calculated:

$$(\Delta Q/Q)/(\Delta P/P) = .25$$
$$\Delta P = (-.5/60.5)/(.25/35.00)$$
$$= 1.157$$

Equation slope = $\Delta Q/\Delta P = .432$
Equation intercept = $Q - (\Delta Q/\Delta P)P = 45.38$
$Q_S = 45.38 + .432P$

3. If demand is lowered by 0.5 MMB/D, then:

$$Q_D = 64.24 - .121P$$

4. A new equilibrium price can be solved for as follows:

$$Q_D = Q_S$$
$$64.24 - .121P = 45.38 + .432P$$
$$P = 34.10$$

5. The equilibrium price is \$35.00 - \$34.10 = \$0.90 lower when demand is reduced 0.5 MMB/D for an assumed demand elasticity of -0.07 and supply elasticity of +0.25.

6. For a demand elasticity of -0.61, the original demand equation is:

$$Q_D = 97.39 - 1.054P$$

and the new equilibrium price demand as follows:

$$96.89 - 1.054P = 45.38 + .432P$$
$$P = 34.66$$

Thus, the demand induced equilibrium price decrease is \$0.34 for an assumed demand elasticity of -0.61 and supply elasticity of +0.25.

ENERGY ANALYSIS

AGA
American Gas
Association

Policy Evaluation & Analysis Group
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209
703-841-8400

1981-6 April 24, 1981

SURVEY OF ACTUAL AND POTENTIAL OIL OFFSETS ENABLED BY INCREASED GAS USE IN 1980

A. Introduction

Late 1979, A.G.A. conducted a survey of gas companies with major industrial gas sales requesting information on (1) the amount of oil actually displaced by increased use of gas in industrial markets, and on (2) governmental and other supply constraints that limit further industrial oil displacement. The results of that survey indicated that the gas utility industry offset the use of imported oil in industrial and power plant boilers at an average rate of 435,000 barrels per day in 1979. Additional potential industrial oil offsets of 116,000 barrels per day in the first half of 1980 were found to be possible, although blocked by a variety of non-supply constraints.

The purposes of this updated survey and analysis are (1) to update the actual oil displacement findings to 1980,(2) to identify the extent to which actual gas loads were lost to oil in 1980 as a direct result of the Fuel Use Act, NGPA incremental pricing, and other constraints (i.e., gas-to-oil switching) and (3) to expand the survey coverage to include residential and commercial gas markets. Also, the questionnaire asked gas companies to specify the additonal amount of potential oil displacements beyond the fuel switching identified in item (2) above that are blocked by regulatory impediments, both state and federal as well as impediments arising from negative customer perceptions about the role of gas.

B. Executive Summary of Results

- In 1980, an average of 286,000 barrels per day of actual and potential gas use was displaced by oil. Of this oil use, 169,000 barrels per day was direct fuel switching; that is, industrial and power plant gas customers switching to oil. The remaining 117,000 barrels per day was "blocked oil displacement"; that is, identified current oil consumption in these sectors that would have switched to gas but for gas demand constraints.

1981 by the American Gas Association

  - 67,000 barrels per day of this total 286,000 barrels per day loss of actual and potential gas consumption to oil was directly attributable to the FUA and NGPA incremental pricing.

  - The remaining 219,000 barrels per day were lost to a number of factors, such as state restrictions on gas use. While FUA and incremental pricing were not the primary factors causing this 219,000 barrels/day of increased oil use, they evidently contributed to the end-users' decision to burn oil. Other factors included take-or-pay contracts for fuel oil and state volumetric limits on gas.

- Following adjustment for the 286,000 barrels per day of actual load loss in 1980, this analysis concludes that the total amount of oil actually displaced by increased industrial gas use over 1979 levels rose only marginally in 1980 from 435,000 barrels per day up to 456,000 barrels per day. That is, net oil displacement increased by only 21,000 barrels per day in 1980 -- about a 5% increase. However, much of this oil offset is taking place under temporary "public interest exemptions" to the Fuel Use Act, and much of this gas use will revert to oil before 1985 unless FUA is amended.

- In addition to the actual displacements of oil by gas there is another 588,000 barrels per day of potential oil displacements in industrial and power plant boilers that are gas capable. It is concluded, however, that this additonal oil displacement with gas is unlikely to take place in the near-term because of continued uncertainties caused by both FUA and NGPA incremental pricing.

  - Since 1978 the maximum short-term oil displacement potential of 1.55 million barrels per day has actually declined to 1.33 million barrels per day in 1980 because of 223,000 barrels per day in oil-to-coal conversions in the power plant market. Subtracting the 456,000 barrels per day actual displacements and the 286,000 barrels per day actual and potential losses from this total short-term potential of 1.33 million barrels per day results in the additional potential of 588,000 barrels per day.

- With the addition of residential and commercial oil displacements of 40,000 barrels per day, the total displacements of oil by the gas industry averaged 496,000 barrels per day in 1980.

C. Background and Methodology

Questionnaires were sent to A.G.A. member companies on the Industrial Marketing Committee and the Incremental Pricing Task Force as well as other gas utility companies with large industrial and power plant sales. Survey responses were received from 36 gas utility companies from all regions of the country with combined 1979 gas sales accounting for 43% of total gas utility industrial sales. Data from the 36 respondents were divided by .43 to expand the actual results to reflect the entire gas utility industry.

The survey questionnaire (see Appendix A) expanded the coverage in previous oil displacement surveys to include all major gas markets. Information was requested in three areas: actual oil displacements by gas in 1980, actual losses of gas sales to oil in 1980 and potential short-term oil displacements blocked by various regulatory and market constraints. Oil displacements were defined through November 1980 as existing oil use that actually has been or potentially could be displaced by additional gas sendout with available supplies as compared to 1979. For the industrial, power plant and commercial markets, the breakout between distillate and residual fuel oil displacements (or losses) was requested.

Both the section on actual losses to oil and the section on potential short-term oil displacements asked respondents to breakout the relevant volumes according to the specific regulatory, statutory or market factor involved. For the section on actual losses to oil, the questionnaire asked respondents to assign volumes for losses due to Phase I incremental pricing, the Fuel Use Act and/or market forces (price and supply). Several possible factors were listed as causes for the blocked potential short-term oil displacements, as indicated in the survey form in Appendix A. It is important to note that for purposes of the survey a constraint can be direct or indirect, i.e., customer confusion over a regulation such as the Fuel Use Act can be as great a constraint as the regulation itself. Moreover, a market constraint on gas caused by lower fuel oil prices or the perception of security of supply for oil, may in fact be considered an indirect regulatory constraint in that a customer chooses a low-price, long-term oil contract rather than a fixed-rate, low-priority interruptible gas contract. In effect, gas companies are constrained in their freedom to competitively price gas to meet actual market conditions.

D. Discussion of Results

As seen in figure 1, oil displacements by gas are actually leveling-off due to regulatory and market constraints at a rate well below gas' potential.

- Despite gas losses to oil of 286,000 barrels per day, the gas industry was still able to displace oil in power plant and industrial applications at the net rate of 456,000 barrels per day in 1980, principally as a result of exemptions to the FUA and consistent with the 511,742 barrels per day in exemptions reported in DOE's Power Plant and Industrial Fuel Use Act Annual Report published in 1980. However, these exemptions are temporary and could result in up to 512,000 barrels per day of oil displacements by gas returning to oil use in the near-term if FUA is not amended.

- In addition to the actual displacements of oil by gas there is another 588,000 barrels per day of potential oil displacements which are gas capable but are not attainable in the near-term due to the continued uncertainty regarding FUA and NGPA incremental pricing.

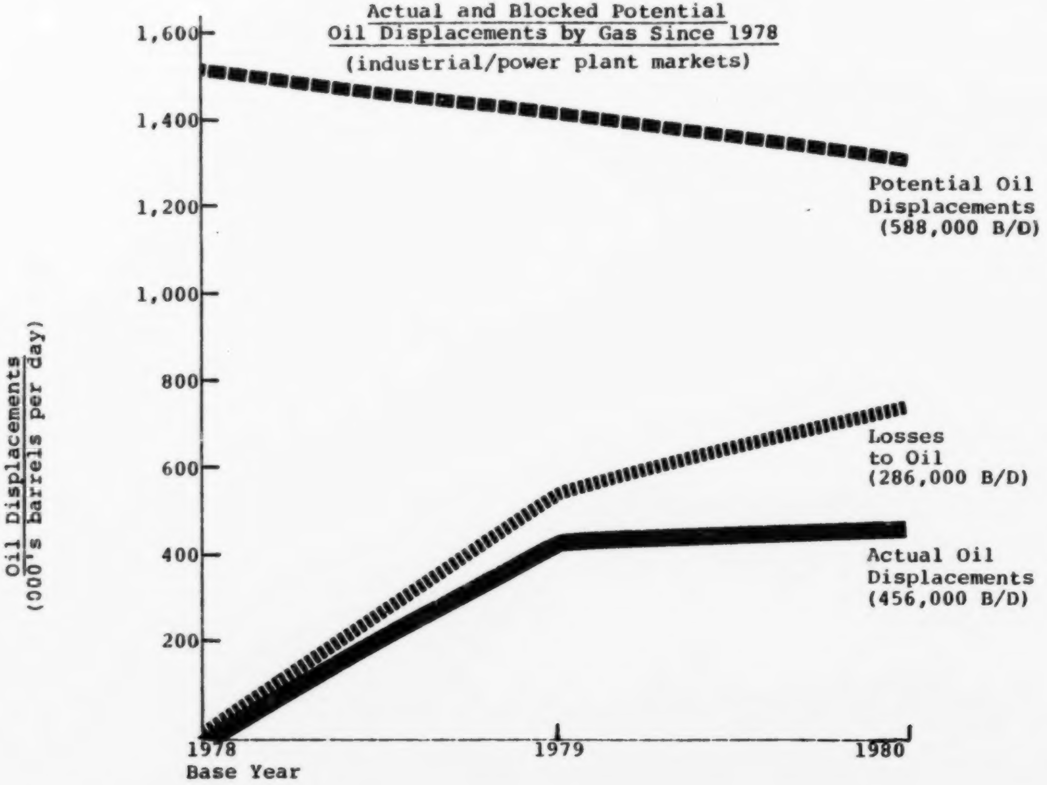
    - Since 1978 the maximum short-term oil displacement potential of 1.55 million barrels per day has actually declined to 1.33 million barrels per day in 1980 because of 223,000 barrels per day in oil-to-coal conversions in the power plant market. Subtracting the 456,000 barrels per day actual displacements and the 286,000 barrels per day actual and potential losses from this total short-term potential of 1.33 million barrels per day results in the additional potential of 588,000 barrels per day.

- The industrial market (including electric power plants) accounted for the displacement of 190,000 barrels per day, or 83% of total oil displacements due tc gas utility sales. However, nearly all the actual losses, or about 169,000 barrels per day, occurred in the industrial market. This net oil displacement in the industrial market of 21,000 barrels per day in 1980 would be in addition to the 435,000 barrels per day of oil displaced in industrial markets in 1979.

Figure 1

Actual and Blocked Potential Oil Displacements by Gas Since 1978

(industrial/power plant markets)



Note: Potential oil displacements reflect the industrial/power plant market only from a previous survey, A Survey of Potential Industrial Oil Offsets in the Near-term, A.G.A., Arlington, VA., January 12, 1979.

  - Within the industrial market, electric power plants accounted for 70,000 barrels per day, or 37% of industrial oil displacements by gas utility sales.[1] The breakout between distillate/residual oil displacements was 37% distillate/63% residual oil in the direct industrial market and 33% distillate/67% residual oil in the electric power plant markets.

- Oil displacements by gas in the residential market averaged 25,000 barrels per day, or 11% of total oil displacements by gas. Based on weighted average annual gas consumption per unit of 122.7 mcf for single and multifamily dwellings,[2] the 25,000 barrels per day corresponds to approximately 435,000 residential units in 1980. This estimate of 435,000 units tracks closely with the 383,000 residential conversions anticipated for 1980 in A.G.A.'s Gas Househeating Survey.[3]

- Oil displacements by gas in the commercial market averaged 15,000 barrels per day, or 6% of total oil displacements by gas.

  - Commercial oil displacements were 58% distillate fuel oil and 42% residual fuel oil.

The survey questionnaire section on actual losses to oil, as opposed to oil-to-gas displacements, showed a significant volume in 1980, helping to negate the nations' effectiveness in reducing oil imports. Actual losses to oil accounted for 169,000 barrels per day of oil use at the expense of natural gas in 1980.

---

[1] Power Plant and Industrial Fuel Use Act Annual Report, U.S. Department of Energy, March 1980. Data based on electric power plant responses to Economic Regulatory Administration (ERA) Form 316 suggest that total oil displacements through the mechanism of Temporary Public Interest Exemptions to the Fuel Use Act in 1980 (largely through non-utility gas sales) by electric generating plants was 511,742 barrels per day. This volume would include oil displacements based on A.G.A.'s survey of gas utility company sales as well some direct power plant sales not reported in A.G.A.'s survey.

[2] Gas Househeating Survey: 1979, p.14, (Arlington, VA: American Gas Association, January 1, 1981.

[3] Ibid., p. 10

- Nearly 92% of the losses to oil, or 155,000 barrels per day, were the result of fuel switching from natural gas to residual oil. This was primarily the result of the residual oil glut experienced in 1980 when average U.S. residual fuel oil retail prices actually declined 14% between February and April and did not return to February price levels through most of the year.[4]

- Market forces accounted for 122,000 barrels per day of gas-to-oil switching. According to the options offered in the survey questionnaire, market forces were described as either a price or supply response, but, typically, respondents interpreted the question in terms of changes in *oil* price or supply. For example, the case of power plants switching to oil for supply reasons was primarily a reflection of their efforts to secure long-term fuel supplies through take-or-pay contracts for residual oil at advantageous prices, while avoiding the uncertainty of being classified a low priority gas customer under the curtailments system.

- In addition to the effects of negative market forces, direct regulatory problems contributed significantly to the resurgence of oil use in place of natural gas. The Fuel Use Act accounted for 44,000 barrels per day of gas-to-oil switching, 96% of which (42,000 b/d) went to increased residual oil use in the power plant sector.

  - Phase I incremental pricing was found accountable for only 3,000 barrels per day of displacements, but this occurred during a few months in early 1980. It is conceivable that a large volume of industrial load never went to gas because of customer uncertainty over the incremental pricing provisions.

The third section of the survey questionnaire requested respondents to specify the impact of several regulatory and market constraints on the *potential* for further short-term oil displacements.

- The results indicate that an additional 136,000 barrels per day beyond the 230,000 barrels per day of oil actually displaced in 1980 could be achieved, but are blocked.

---

[4] *Monthly Energy Review*, U.S. Department of Energy, January 1980, p. 83.

  - The 136,000 barrels per day of blocked potential oil displacements are broken down by market sector as follows:

    Power Plant - 75,000 b/d; Industrial --41,700 b/d
    Residential - 13,200 b/d; and Commercial -- 6,100 b/d.

  - A significant proportion of the blocked potential displacement would be for residual oil: 100,000 barrels per day, or 74% of the total blocked potential.

- In the "other" category, which was the dominant category, the major obstacle to increased short-term oil displacements was the existence of take-or-pay oil contracts. Altogether, the "other" category accounted for 68,000 barrels per day of oil displacements, or one half of the blocked potential.

  - The electric power plant sector accounted for 85% of this blocked potential, due to take-or-pay fuel oil contracts, or 58,000 barrels per day (comprised entirely of residual oil).

  - The next largest factor cited in the "other" category was the backlog of residential baseload customers not yet converted to gas for spaceheating use due to technical delays and various other reasons. This constraint has blocked the displacement of 8,000 barrels per day of distillate oil use.

- The Fuel Use Act was the second most significant constraint on the potential for additional oil displacements accounting for 17,000 barrels per day, or 25% of the blocked potential. Some 3,000 barrels per day of potential offsets were forgone due to incremental pricing.

  - Overall, actual and potential losses due to direct regulatory constraints such as FUA and incremental pricing totalled 67,000 barrels per day in 1980.

E. Conclusions

Despite adverse economic conditions and the impact of several regulatory and statutory constraints, the gas utility industry was able to displace an additional 230,000 barrels per day of imported oil use in all markets in 1980 beyond the 435,000 rate experienced in 1979. On the negative side, a combination of both a significant drop in residual oil prices and the effects of such regulatory constraints on gas marketing as the Fuel Use Act led to the actual loss to oil of 169,000 barrels per day equivalant of gas use, resulting in a net displacement rate of 496,000 barrels per day since 1978 for the gas industry as a whole.

In the industrial sector (including power plants) these factors have resulted in a net increase of only 21,000 barrels per day over the 1979 level of 435,000 barrels per day of oil displacements through gas utility sales. However, in addition to displacements through gas utility sales, data from the Department of Energy suggest that perhaps an additional volume of oil displacements are occurring through direct producer sales to power plants under special temporary public interest exemptions to the Fuel Use Act. These volumes of direct sales could decrease dramatically in a relatively short period of time if the exemptions are not renewed.

In addition to the actual oil displacements now occurring, additional potential short-term oil displacements by gas of 136,000 barrels per day are now being blocked by a variety of constraints. Market forces that led electric power plant customers to enter into long-term take-or-pay fuel contracts account for 50% of this blocked potential. However, a variety of other constraints, among them such regulatory obstacles as Fuel Use Act concerns, state restrictions and incremental pricing accounted for the rest of the blocked potential. Clearly, these end-use restrictions on natural gas are having a negative influence on the national goal to further reduce our dependence on oil imports.

State______________________

Company____________________

Respondent_________________

Phone No.__________________

Appendix A

Survey of Actual/Potential Oil Displacements in 1980

Please note that oil displacements are measured in Mcf/yr. and that you are asked to specify amounts of potential oil displacements that are blocked for each constraint that is relevant to a given market. A constraint can be direct or indirect, such as when a displacement is blocked due to customer confusion over a particular regulation. Oil displacements are defined through November 1980 as existing oil use that actually has been or potentially could be displaced by additional gas sendout with available supplies as compared to a 1979 base year.

Market Fuel Oil (Mcf/yr.)	Industrial		Power Plant		Commercial		Residential
	dist.	resid.	dist.	resid.	dist.	resid.	dist.
Actual Oil Displacements by gas							
Actual Losses to Oil -Due to Phase I Incremental Pricing							
-Due to FUA, etc.							
-Due to market forces: 1. Price							
2. Supply							
Total losses							
Potential short-term oil displacements now being blocked by: -Incremental pricing							
-Fuel Use Act							
-Certification delays							
-State restrictions							
-Reluctance to hook-up due to curtailment priorities							
-Fear of reprisals from oil suppliers							
-Supply availability							
-Relative price of fuels							
-Other (specify)							
Total Potential							

Comments:____

____

State________________________________

Company______________________________

Respondent___________________________

Phone No.____________________________

Attachment

11/5/80

Survey of Actual/Potential Offsets in 1980

Please note that oil offsets are measured in gallons per day and that you are asked to specify amounts of potential oil offsets that are blocked for each constraint that is relevant to a given market. A constraint can be direct or indirect, such as when an offset is blocked due to customer confusion over a particular regulation. Oil offsets are defined through November 1980 as existing oil use that actually has been or potentially could be offset by additional gas sendout with available supplies as compared to a 1979 base year.

Market Fuel Oil (gal/day)	Industrial dist.	Industrial resid.	Power Plant dist.	Power Plant resid.	Commercial dist.	Commercial resid.	Residential dist.
Actual Offsets to gas							
Actual Losses to oil							
-Due to Phase 1 Incremental Pricing							
– Due to FUA, etc.							
-Due to market forces (price and supply)							
Total losses							
Potential short-term offsets to gas now being blocked by:							
-Incremental pricing							
-Fuel Use Act							
-Certification delays							
-State restrictions							
-Reluctance to hook-up due to curtailment							
-Fear of reprisals from oil suppliers							
-Other, e.g., supply availability							

ENERGY ANALYSIS

AGA
American Gas
Association

Policy Evaluation & Analysis Group
American Gas Association
1515 Wilson Boulevard
Arlington VA 22209
703 841 8400

1981-10 September 4, 1981

THE RELATIONSHIP BETWEEN STATE REGULATORY POLICY AND GAS UTILITIES' FINANCIAL STANDING

A. Introduction

Over the past decade, many investor-owned energy utilities have lost their relative attractiveness in the financial marketplace. One of the principal factors impacting energy utilities financial standings has been inadequate rate relief and rates of return on equity. This can cause the financial rating agencies to downgrade the ratings of certain utilities' debt issues, which in turn, results in these energy utilities both being charged higher interest rates when issuing debt capital and receiving lower prices for equity capital. While the cost of capital to all American industry -- including gas utilities -- has significantly increased as a result of inflation and other factors, utilities experiencing inconsistent PUC rate regulation have had capital charges rise more rapidly than the national average.

In many instances, utilities issuing equity capital for new construction have sold stock below book value (i.e., below the original cost of net assets owned by existing stockholders). A principal reason a company cannot receive book value for its stock in the market is inadequate public utility commission (PUC) rate relief. In addition to equity losses incurred by stockholders, the higher interest charges required by the financial community for lower rated utility debt issues has increased the cost of providing service to consumers.

The purpose of this analysis is to examine the impact of state regulatory decisions on the cost of raising capital for gas distribution companies.

B. Executive Summary

- The composite gas distribution company industry average market/book ratio has declined from 2.30 in 1965 to 0.87 in 1979 (see Table 1). Over the same period, the weighted average interest on newly

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Table 1

FINANCIAL PROFILE OF THE GAS DISTRIBUTION INDUSTRY

(current dollars)

Year	Stock Price/ Share	Book Value/ Share	Stock Price/ Book Value Ratio	Interest on New Utility Debt[1/]	Interest on New Industrial Debt	Utility Interest Industrial Interest Ratio
1955	27.98	17.30	1.62	n/a	n/a	n/a
1960	42.89	22.00	1.95	4.84	4.67	1.04
1965	67.77	29.47	2.30	4.68	4.80	0.98
1970	46.48	34.33	1.35	8.85	8.86	1.00
1975	38.93	42.97	0.91	9.76	9.12	1.07
1979	52.15	60.18	0.87	10.64	9.49	1.12

Source: Moody's Public Utility Manual, (Moody's Investor Service, New York, NY, 1980), uses sample of nine distribution companies.

[1/] Includes all public utility debt -- not just natural gas distribution companies.

issued utility debt rose from 4.68% to 10.74%.

  - In 1965 the interest on newly issued utility debt was 98% of the interest on newly issued domestic industrial debt. By 1979, the interest on newly issued utility debt was 112% of the interest on newly issued industrial debt. It had, therefore, become more expensive for utilities to issue debt relative to other corporate borrowers.

- The stock ratings, bond ratings and common stock price/book value ratios of the nation's gas utilities correlate closely with the attitude of their state public utility commission (see Table 2).

  - As of March 1981, for a sample of 19[1/] gas distribution companies, a positive statistical correlation of .73 was found to exist between the market/book ratio and a numeric rating of PUC attitude toward utilities (see Figure 1). This correlation corresponds to a 95% level of confidence that PUC attitudes are important factors in determining market/book ratios.

  - Stock and bond ratings for gas distribution companies also correspond with the attitudinal rating of their respective state public utility commissions. Companies with very favorable rated commissions had an average stock rating of between A/A- and bond rating of Aa/A, companies with favorable commissions had an average stock rating of A- and bond rating of A; and companies with unfavorable commissions had an average stock rating of A-/B+ and bond rating of A/Baa.

- Inadequate rate treatment by state commissions has contributed to the sale of gas distribution company common stock at below book value -- resulting in a loss in equity value to existing stockholders.

  - From 1975-1980 gas distribution companies issued common stock to the public -- excludes stock option plans to employees and dividend reinvestment plans -- at $58 million below its book value, cumulatively. Over that period companies with very favorable rated PUC's issued stock at 117% of book value, while companies with favorable PUC's issued common stock at 90.4% of book value and companies with unfavorable PUC's issued stock at 79.4% of book value (see Table 3).

Table 2

THE IMPACT OF PUBLIC UTILITY COMMISSIONS ON GAS DISTRIBUTION COMPANIES FINANCIAL CONDITION

(For the year ending 1979)

	Public Utility Commission Rating		
	Very Favorable	Favorable	Unfavorable
Total outstanding common stock stock price/book value (percentage)	1.48	.94	.70
Immediate equity dilution from new stock issuance ($000)	(3,765)	24,672	36,958
Continuing equity dilution from stock issuance ($000)	(7,193)	39,496	64,985
Average stock rating	A/A-	A-	A-/B+
Average bond rating	Aa/A	A	A/Baa

Sources: Rating the Regulators (Stephen Archer, Williamette University, Salem, Oregon, February 1979); Standard and Poor's Stock Guide (New York, NY, 1981); Moodys Public Utility Manual; and "Summary of Electric and Gas Common Stock Offerings" (Morgan Stanley & Company, May 14, 1981, New York, NY).

FIGURE I

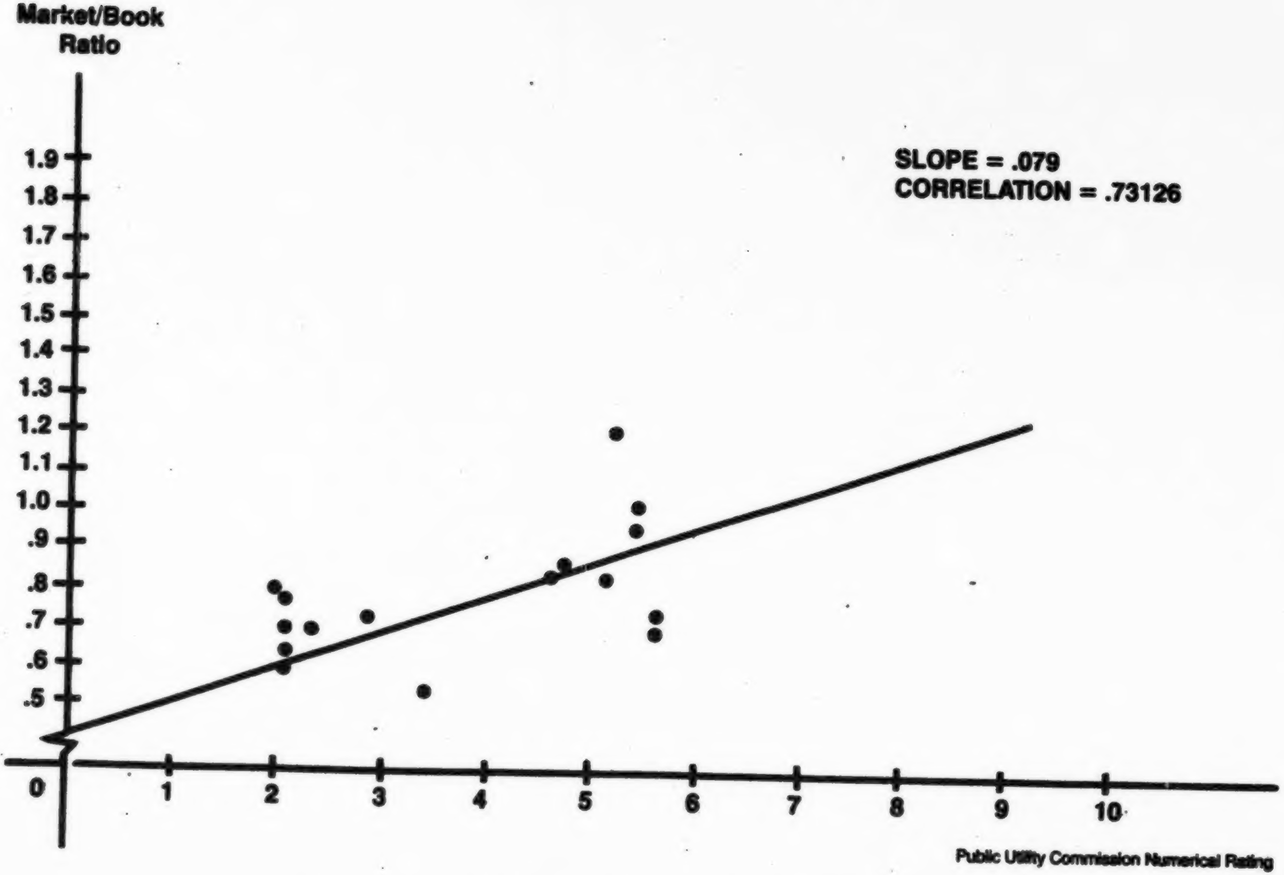
Market/Book Ratio
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
.9
.8
.7
.6
.5
0
1
2
3
4
5
6
7
8
9
10
Public Utility Commission Numerical Rating
SLOPE = .079
CORRELATION = .73126

Table 3

GAS DISTRIBUTION COMPANY EQUITY DILUTION FROM 1975 THROUGH 1980 [1]

Company Categorized by PUC Rating [2]	Value of Stock Issued ($000)	Offering Price as Percentage of Book Value	Loss of Equity Value ($000)
Unfavorable PUC	115769	79.4%	36958
Favorable PUC	231743	90.4%	24672
Very Favorable PUC	25738	117.1%	(3765)
TOTALS	373250	88.0%	57865

---

1. Combination gas and electric utilities and gas utilities with substantial gas production activities excluded. Source: "Summary of Electric and Gas Utility Common Stock Offerings" (Morgan Stanley & Company, May 14, 1981, New York, NY).

2. Based on how financial community has rated PUC. Ratings and Regulators (Stephen Archer, Willamette University, Salem, Oregon, February 1979).

NOTE: The labelling of a PUC as "favorable" does not indicate that companies regulated by commissions in this category are presently receiving adequate rate treatment. Rather the "favorable" label was applied to PUC's regarded as average by the financial community.

- The $58 million equity loss, if compounded at the average return on equity for gas distribution companies from the time the stock was issued through 1980, would result in a total equity loss of $97 million. This figure neglects loss from stock option and dividend reinvestment plans and costs of stock issuances.

- Combination gas and electric utilities issued common stock at $750 million below book value during the same period (89% of book value). This figure excludes: (1) continuing losses that occurred after the initial stock issuances; (2) transaction costs of stock issuances; and (3) losses incurred as a result of stock option plans and dividend reinvestment plans.

C. Discussion of Results

Over the last fifteen years, the market price of gas distribution company stock -- represented by a Moody's sample -- has fallen as a percentage of book value (referred to as market-book ratio). In 1965, the average market to book ratio for these gas distribution companies was 2.30 (i.e., common stock held by the public sold at 2.30 times the original value of company equity). By 1979, the market to book ratio had fallen to 0.86 (see Table 1). In addition, the attractiveness of all utility debt has fallen relative to general industrial debt. In 1965, new utility debt issues sold with interest charges below industrial debt (4.68% for utilities, 4.80 for industry). In 1979, new utility debt was generally considered less desirable by investors, requiring higher interest rates (10.64% for utilities, 9.49% for industry).

As shown in Table 2, there is a strong relationship between the financial stature of a gas distribution company and the way the financial community rates its PUC. Gas distribution companies with more favorably rated PUC's are characterized by higher stock and bond ratings, and higher stock price to book value ratios.

It is only over the last ten years that PUC ratings have become a significant factor to the financial community in evaluating the financial status of gas utilities. From 1950 to 1973, the average residential gas heating bill fell from 1.5% of disposable family income to 1.1%. Since 1973 this trend has been reversed, with residential gas heating bills consuming 1.4% of disposable family income.2/ While the primary causes of this increase are entirely out of the control of gas utilities (i.e. higher gas purchase costs and taxes)3/, some state public utility commissions have attempted to arrest this trend of increasing gas bills by delaying, substantially reducing, or refusing altogether rate increases requested by gas utilities. These inadequate rate decisions have put considerable financial pressure on gas distribution companies. The impact of this pressure is that utilities are selling equity at below book value and paying higher interest rates on newly issued debt. In addition, the financial difficulty created by unfavorable PUC rate decisions will significantly raise the cost of capital to gas distribution companies.

A sample of 19 gas distribution companies was examined to ascertain the statistical correlation between a gas distribution company's market/book ratio and the financial community's evaluation of the company's state PUC. Figure 1 shows that a 0.73 correlation exists between PUC rating and market/book ratio. This statistical correlation, for a sample of 19, is considered significant at greater than the five percent level.4/

The principal immediate impact of unfavorable PUC rate decisions on gas distribution companies is the loss of per share equity value of these firms when they issue new common stock. The decline in investor favor toward gas distribution company equity has been directed primarily at companies with unfavorable rated PUC's. As Table 3 shows, companies with unfavorable rated PUC's issued stock from 1975-1980 at an average of 79.4% of book value. Companies with favorable and very favorable rated PUC's issued common stock at 90.4% and 117.1% of book value, respectively. For the gas distribution industry as a whole, common stock was issued at 88.0% of company book value during the 1975-1980 period. This resulted in a loss to the stockholders of over $58 million of equity value -- $95 million if continuing losses of return on equity resulting from the original loss is included. Over 60% of this equity loss was from companies with unfavorable rated PUC's, despite the fact that these companies issued only 30% of the common stock.

The loss of stockholder equity through new stock issuances below book value is not confined to gas distribution utilities. Combination gas and electric utilities experienced a $750 million loss during the 1976-1980 period. The methodology used to calculate this loss also understates the total dollar amount by not including the cost of issuing common stock, lost earnings on funds not received, and losses from the issuance of shares through stock option and dividend reinvestment plans. If these factors were taken into consideration, the total value of losses would be considerably higher. For example, two single state analyses for all energy utilities (including pure electric companies), each estimate losses of approximately $500 million for the period 1976-1980.

D. Methodology

This analysis examined two independent sources which compiled financial community assessments of state public utility commissions.5/ Assessments were based on whether investment banking houses and financial rating services viewed a particular public utility commission as "pro-business" or "pro-consumer". Criteria for evaluating commissions included: rate base evaluation; interim rate relief; regulatory lag, ROE allowance and revenue allowed for tax deferral. Public utility commissions were divided into three categories: (1) very favorable; (2) favorable; and (3) unfavorable. The two sources used to rank regulatory commissions surveyed a significant number of financial institutions to derive their respective PUC rankings. While some variation in rankings of PUC's occurs over time, both sources evaluated PUC ratings for 1978.

The bond rating, stock rating and new common stock issuances (1975-1980) for major gas distribution companies were identified.

These financial criteria were then averaged for companies on the basis of their PUC's rating. This enabled identification of differences in stock ratings, bond ratings, and common stock equity losses for gas distribution companies based primarily upon the financial community's perception of their state PUC. Assuming all other factors are equal (e.g., utility management capability and nature of service area), this categorization isolated PUC activities. Combination gas and electric companies and distribution companies with significant gas production were not considered because the investment attractiveness of these types of companies are significantly impacted by non-gas distribution activities.

In order to calculate equity losses resulting from new common stock issuances, the offering price of gas distribution company stock (combination gas/electric companies and major gas producers excluded) was subtracted from the book value of those utilities and the difference was multiplied by a number of shares issued. Offering prices, volumes and book value of gas distribution companies were taken from "Summary of Electric and Gas Common Stock Offerings" (Morgan Stanley & Co., May 14, 1981, New York, NY). The same methodology was applied to combination gas/electric utilities to derive their stockholders equity losses for 1976-1980 period.

The losses experienced by shareholders of pure gas distribution companies stock was relatively low compared to combination gas and electric utilities because of the limited amount of stock issued by gas distribution companies between 1976-1980. The methodology used to calculate equity losses understates the total losses experienced by gas utilities because it does not include issuance of common stock through dividend reinvestment plans and common stock purchase plans. Losses resulting from such stock option and dividend reinvestment plans could be very significant. The calculation for all combination gas and electric utilities also did not include the lost return on equity over time that results from the original loss of equity funds at the time of sale (i.e., if book value had been received for stock at the time of issuance, then the additional funds received would have earned a return in subsequent years). This continuing loss was calculated for gas distribution companies only. Given a 15% return on equity, this calculation would roughly double the impacts every seven years.

The nineteen companies in this analysis were selected based on the following criteria: (1) these companies are relatively pure distribution companies; (2) they are publicly traded; and (3) they operate principally in one state. Eight of the companies included would have to be excluded from the sample if the above criteria were very strictly enforced. They were included because the activities that would disqualify them were not considered sufficient to significantly impact their financial status.

The nineteen companies in the sample had an aggregate sales volume of 2451 million Btu's in 1979 -- representing 59% of total sales of pure distribution companies. The total common stock equity of these companies in 1979 was $593 million, representing 54% of pure gas utility common stock.

E. Summary

This analysis did not attempt to calculate whether the short-term benefits provided current rate-payers by not permitting justified rate increases are outweighed by the longer-term costs to these same gas consumers. This analysis did show such rate treatment impairs the ability of gas distribution companies to acquire financing by increasing the cost of new financing. The analysis also calculated the equity losses that were experienced by both gas and combination gas/electric utilities between 1976-1980. Edward Larkin, a member of the New York Public Service Utility Commissioners characterized the financial status of public utilities.

> "If the investor-owned utility complex is to survive in the 1980s, regulators will have to come to grips with the realities of the marketplace ... All of the fat has been taken out of the industry and it is down to the bone and gristle. If the bones are disturbed the structure will be destroyed; and, if the gristle is removed, the structure will collapse."6/

As Mr. Larkin correctly points out, harsh regulatory rate decisions by state PUC's cannot continue without causing irreparable financial damage to our nation's utilities. This analysis quantifies the impacts of unfavorable PUC decisions on local utilities by contrasting the financing status of gas utilites with the attitude of their state PUC's. Future analyses of this issue could include: (1) the impact of higher debt charges caused by inadequate rates on the cost of providing gas service; (2) the percentage of a consumers gas dollar -- current and future -- attributable to activities controllable by gas distribution companies; and (3) how specific regulatory policies and practices (e.g., reasonable opportunity to earn an adequate competitive rate of return, flow through practices and others) impact utility operations.

Mr. SHARP. Thank you.

Mr. McGrath?

STATEMENT OF JEROME J. McGRATH

Mr. McGRATH. Thank you, Mr. Chairman.

I am Jerome J. McGrath, president, Interstate Natural Gas Association of America, often referred to by its acronym, INGAA. We appreciate this opportunity to appear before your committees to express our endorsement of and support for the Alaskan northwest natural gas transportation project.

Final approvals for this project are long overdue, and favorable congressional action on the waiver package is essential to development of a financing plan which will, hopefully, enable the project to go forward.

I would ask that my full statement be submitted in the record.

Mr. Lawrence has covered a number of the points I would have otherwise addressed. We, on behalf of the interstate pipeline industry, support the proposal on the waiver package and urge that Congress act favorably upon it. As you know, our association represents virtually all the major interstate natural gas pipelines in the United States, and all of the U.S. pipeline partners of the northwest Alaskan project are members of INGAA.

We have, for years, looked to the Prudhoe Bay area as being probably the largest single untapped source of gas reserves in the United States, and for the long term, to aid the long-term supply needs of this country. The time it has taken to get this project underway is almost beyond belief.

As you know, the first proposal was submitted to the Federal Power Commission in March of 1974. The long and short of it is that we need Alaskan natural gas in the lower 48 States to offset, as Mr. Lawrence has pointed out, what we perceive to be, and most forecasters do, a gradual decline in reserves in the lower 48 from conventional sources.

Here is this large body of gas sitting up in Alaska, albeit a far distance from the lower 48. But that is only part of the story. We believe the potential there is very great for additional reserves, and we say let's get on with the project.

Most current estimates project the Alaskan gas coming onstream in 1986 or 1987, and eventually going up to about 8 to 10 percent of the supply. The line under its current design would have an initial capacity of about 2 to 2.4 billion cubic feet a day; and with additional compression and other modifications it could go up as high as 3.2 BCF per day.

That is a lot of gas to bring into the marketplace today. We feel it is marketable. Our companies who are involved in the project have made exhaustive studies of the—not only the need for, but the potential use of, the gas; and all have concluded, or they wouldn't be in the project in the first place, that it is not only needed, but that they can sell it.

So from the point of view of the interstate pipelines, the Alaska project presents a viable source of new supply, and the sooner it becomes available, the better off we are. Mr. Lawrence has raised a number of points that I was going to cover, so I will just pass with my full statement in the record, Mr. Chairman.

[The statement of Mr. McGrath follows:]

STATEMENT OF JEROME J. MC GRATH
PRESIDENT, INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA
BEFORE THE
FOSSIL AND SYNTHETIC FUEL SUBCOMMITTEE OF THE
HOUSE ENERGY AND COMMERCE COMMITTEE
AND THE
ENERGY AND ENVIRONMENT SUBCOMMITTEE OF THE
HOUSE INTERIOR COMMITTEE

October 27, 1981

I am Jerome J. McGrath, President, Interstate Natural Gas Association of America, often referred to by its acronym, INGAA. We appreciate this opportunity to appear before your Committees to express our endorsement of and support for the Alaskan Northwest Natural Gas Transportation project. Final approvals for this project are long overdue, and favorable Congressional action on the waiver package is essential to development of a financing plan which will, hopefully, enable the project to go forward.

INGAA is a national trade association representing virtually all of the major interstate natural gas transmission companies in the United States. Our members account for approximately ninety percent of all natural gas transported and sold in interstate commerce. All of the U. S. pipeline partners in Alaskan Northwest are members of INGAA either directly or through affiliates or subsidiaries. You have heard testimony from most, if not all, of the partners, and INGAA certainly joins in their unified support of the project and request for approval of the waiver package.

Since these companies are much more familiar with the proposed waivers and are in a much better position to comment on them than we are, my statement will not address the waivers as such. What I do wish to stress is the importance the natural gas pipeline industry attaches to securing natural gas supplies from Alaska at the earliest possible time. The delays encountered by the effort to bring Alaska natural gas to the lower forty-eight states have been endless. The first proposal to build a pipeline from Alaska to the upper Midwest was submitted to the Federal Power Commission in March, 1974 -- over seven years ago. Since that time, the cost has spiraled upward and today financing is the critical issue that must be resolved. Without approval of the waiver package, the economic viability of the project is in grave doubt and even further costly delays are sure to follow.

The long and short of it is, we sorely need the Alaskan gas in the lower forty-eight states, and the Northwest Alaskan project is the best available means to get this gas to market. Alaskan gas will be needed to offset the gradual decline in lower forty-eight reserves of gas which most forecasters predict will occur. As has been pointed out to you previously in these hearings, the U. S. is currently producing more gas annually than we are finding, although the discovery rate of new reserves has increased dramatically since passage of the Natural Gas Policy Act (NGPA) in 1978. Nevertheless, the largest single untapped reserve of natural gas in the United States is the Prudhoe Bay area in Alaska, containing some twenty-six trillion cubic feet of proved reserves. With lower forty-eight production estimated to decline from about 20 Tcf. in 1980 to about 16 Tcf. in 1990, it is apparent that Alaskan gas must be brought into the lower forty-eight as early in the 1980's as is possible. Without Alaskan gas, there will be a considerable shortfall in supply available to meet projected demand.

Most current estimates project Alaskan gas coming on stream in 1986 and gradually increasing to about eight to ten percent of total U. S. supply by

1990 and beyond. The line would have an initial capacity of 2.0 to 2.4 billion cubic feet per day (Bcf/d) with the capability for expansion to an average daily volume of 3.2 Bcf/d. These are significant amounts of gas to be introduced into the lower forty-eight states' market.

The U. S. pipeline partners in their own systems cover practically every area of the country -- from the East Coast to the West. These companies, after exhaustive study, have determined that not only will Alaska gas be needed to shore up declining supplies but that it will be marketable in their respective service areas. The cost of competitive sources of energy, principally fuel oil and electricity, are constantly rising in most regions of the country; and natural gas is still a bargain, even with higher supplemental sources such as high BTU coal gas and Alaskan gas. Moreover, as the cost of the Alaskan Northwest project is amortized over the project life, the cost per MMBTU becomes lower, enhancing its competitive posture. From the point of view of the interstate pipelines, the Alaska project presents a viable source of new supply; and the sooner it becomes available, the better off we all will be.

Finally, the Congress cannot overlook the fact that Alaskan gas can offset oil imports by a significant amount -- anywhere from 400,000 to 600,000 barrels per day, depending on the amount of gas delivered through the ANGTS. From the national security standpoint and certainly as a means of reducing our balance of payments, it makes eminent good sense to reduce our dependency on OPEC imports and increase our reliance on known sources of energy in Alaska and the North American Continent. The Alaskan Northwest project would be a major step in that direction.

The interstate pipeline industry, therefore, believes it imperative that the Alaska Northwest project go forward as expeditiously as possible. Congressional approval of the waiver package is essential.

I thank you for this opportunity to appear before your Committees to express INGAA's support for this important project.

Mr. SHARP. Fine. Thank you very much. The gentleman from California, Mr. Dannemeyer, do you have questions?

Mr. DANNEMEYER. Yes.

Mr. Lawrence, you were here before our subcommittee, I think, earlier this year, June, I believe, testifying on another issue. It is interesting to compare your testimony on that day with today, because, as I understand the position of your association, you are opposed to deregulation, immediate deregulation of old gas, but so far as new gas is concerned, I suppose you would tend to support, or not oppose, immediate deregulation.

Is that a fair statement?

Mr. LAWRENCE. Not quite. You are certainly right that we are opposed to the deregulation of old gas. But don't put such a casual twist on our very affirmative support of long standing for deregulation of new gas. We have been out ahead of many of the producers on that issue, and that is an incentive for future exploration. And that is our position.

Mr. DANNEMEYER. I appreciate that. It is interesting on this particular issue that we consume roughly 20 trillion cubic feet a year of natural gas. We are talking roughly 5 percent of that total for the Alaskan gas.

It is true that over time we could anticipate that the cost of Alaskan gas in the lower 48 will be in the range of $5 or $6, I think the testimony was today. But initially there is some evidence, at least that I have seen, that the first few years of that Alaskan gas coming through that pipeline in 1980 dollars, it is going to be $10 a unit.

In 1987 dollars, the projection is $15 to $18. Let's say in 1987, it is $15 to $18, which is about $10 in 1980 dollars.

So the position of your association is in support of a project that will increase our supply by 5 percent, entailing an initial cost of $10 per MCF. Yet this one study by Professor Loury indicates that we can anticipate, at least in his, Professor Loury's, assessment, that if we deregulate immediately, we would increase the supply of natural gas in this country by 25 percent, some 5.89 trillion cubic feet is what his estimate is.

He estimates the cost of the wellhead price of gas to increase from about $2 to $5 under immediate deregulation. So I am a little bothered by the comparison of those positions.

Your association is against a position that will increase the supply of natural gas in this country by 25 percent, assuming his figures are correct, with a consequent increase in cost from $2 to $5 a unit.

At the same time, you are supporting the introduction of a new source of natural gas into our system that initially in 1980 dollars is going to cost $10 a unit. I am a little bothered by that. Is there an inconsistency there, and if so, what is it?

Mr. LAWRENCE. I think you put the supreme qualification on it when you said assuming Dr. Loury's numbers are right. We have a great deal of trouble with Dr. Loury's numbers. It goes back again, Congressman Dannemeyer, to this point of the lack of supply response from the deregulation of old gas.

The cost is up. The facilities are there. The reservoirs are developed. The gas is flowing. I think you will find a great deal of agreement among the producing segment that there is no real significant supply response from old gas deregulation.

Deregulation of new gas for future exploration—yes. We are for it and we have been aggressively for it.

Mr. **Dannemeyer**. We have a difference of philosophy.

Mr. **Lawrence**. I think we do. And again, we recognize that there can be some cases where the old gas needs price relief, so that certainly we don't want premature abandonments or a lack of development. We think that can be accommodated without a massive upscaling or deregulation of all of that gas.

Mr. **Dannemeyer**. There is another feature to this whole thing that we shouldn't overlook. I represent a district in southern California. Sometimes we have bad smog there. I am privileged as a member of this committee to sit on another subcommittee, Health and Environment.

We are going through an exercise now with the Clean Air Act. Some say if we tinker with it at all there will be a gutting of it. Others say we should make modifications to make it better. Take your pick. But the truth is that in southern California, we can identify areas where we are burning oil today which produce emissions, we know the quantity of it.

The cost of that is $32, $34 a barrel today, which, taking one-sixth of that, the equivalent Btu would be around $5, which, if we burn natural gas in southern California for the production of electrical energy, rather than oil, think of what that would do to the quality of the air in southern California.

It would dramatically improve it at no additional cost to the consumer.

Mr. **Lawrence**. And we fought side by side with Southern California Gas Co. and Southern California Edison and others to remove the Fuel Use Act restrictions that would permit that.

Mr. **Dannemeyer**. I think we amended the Fuel Use Act. Now, I think we should concern ourselves with how we can improve the supply side of natural gas in the country so the utilities in southern California can start burning it to get that oil out of there and start cleaning up the air.

Mr. **Lawrence**. Indeed we should. We just differ a little on how.

Mr. **Dannemeyer**. Somehow I hope, sir, that your organization will see it in your soul to recognize that, if Loury is wrong, and maybe he is, you still have one fundamental economic principle that should, I think, in times of gray area, cause you to come down on the side of what Loury is talking about.

That is the market system. Supply and demand. I have much more confidence that the market system can supply the appropriate needed quantity of gas in this country than I do about any bureaucrat who is going to regulate a price.

I think that should be our governing position.

Mr. **Lawrence**. So do we. And we are working to come to this orderly transition. We are trying to get rid of 25 years of unworkable field regulation. You can't do it overnight. I think in this whole subject there has been a lot of discovery of facts.

A lot of people that were talking about immediate total decontrol January 1, 1981; January 1, 1982. They are off that now. They are talking about a more phased decontrol basis. That is progress. They were talking about a market proxy of number two fuel oil plus a premium at 100 percent of crude.

Now they are talking about a market proxy to phase the price up to, over the decontrol phase-up period, of something like 70 percent of crude oil. This is progress. We are working with them, Congressman. We are very hopeful that we can come to some accord, and achieve this orderly transition.

Mr. **DANNEMEYER**. I welcome your help.

Mr. **LAWRENCE**. Thank you.

Mr. **SHARP**. I thank the gentleman.

The gentleman from Ohio, Mr. Seiberling, is recognized.

Mr. **SEIBERLING**. Thank you, Mr. Chairman. I am interested in what you have to say.

Let me ask each of you, do all your respective individual members agree with the positions that you have stated in support of this project?

Mr. **MCGRATH**. Certainly, yes.

Mr. **LAWRENCE**. To my knowledge, yes.

Mr. **SEIBERLING**. That includes the East Ohio Gas Co.?

Mr. **LAWRENCE**. Yes, sir.

Mr. **SEIBERLING**. I have heard all kinds of different prices quoted for what the gas coming out of this pipeline will cost, assuming we grant the waivers. One estimate said $2.50 a thousand cubic feet.

The Northwest Pipeline says the average price will be $4.50, in 1980 dollars, which is what some industry observers say would be the cost of natural gas from other sources if deregulated.

According to one expert quoted by Congressman Weaver last week, the average price would be $15.50 per thousand cubic feet. I understand Northwest last week said the opening price would be $17.50 a thousand cubic feet in 1987.

Can you tell us what your estimates are?

Mr. **MCGRATH**. We, Congressman, are currently making a review of that pricing level, but my understanding is that the $17 as an initial price in the first year of the project probably is in the ball park.

Mr. **SEIBERLING**. Is that in 1980 dollars?

Mr. **MCGRATH**. Well, yes. Actually it would be $14—$14 in 1980 dollars, and going up to about $17 in 1987, 1986.

Mr. **SEIBERLING**. $14. I see. One of your assistants back there was shaking his head when you said $17.50. He seems to be relaxed now, so I guess you have corrected it.

Mr. **MCGRATH**. I might say, of course, that is the initial, the first years of the project. You still have to take the overall 20-year amortized cost. That gets down to your average of about $5.60.

Mr. **SEIBERLING**. Why is it so expensive in the early years?

Mr. **MCGRATH**. For the early years, the depreciation, and you are sending through probably less volume initially and you are building up the volume as you go along.

The more you transport through the line, the less it costs.

Mr. **SEIBERLING**. What is the 20-year average according to your estimates?

Mr. **MCGRATH**. We have accepted the estimates put in by Mr. McMillian last week in his testimony.

Mr. **SEIBERLING**. $4.50?

Mr. McGrath. $5 something, $5.10, I think.

Mr. Seiberling. Yes; Mr. Lawrence, do you have any different information?

Mr. Lawrence. I have a little trouble finding out where the $17 and $18 figures come from. We are looking at Mr. McMillian's testimony that refers to $9.25 to $9.35 in 1980 dollars in the first year and would decline to in the range of $2.75 to $3.20 per million Btu's in the 20th year.

But I think the basic point is that in the early years, because this is a very capital-intensive project in the magnitude of the billions of dollars and that with that early depreciation, it is higher there.

Mr. Seiberling. I understand that in order to go ahead, you are going to have to get all of the gas distribution companies to agree to commit to buy this gas at this price.

Is that right?

Mr. Lawrence. Yes.

Mr. Seiberling. How can we possibly justify that cost to consumers in our various areas?

Mr. Lawrence. In the first place, I think there will be some tariff and rate treatment that will not impose the precise $9.20 figure in that particular year.

There will be in the tariff procedure some amortization of these prices.

Mr. Seiberling. They will raise it in the out years then?

Mr. Lawrence. Yes, sir, I think the answer, though, Congressman Seiberling, is again in not just comparing this alternative supply of gas with another supply of gas, but compare it with what the consumer's alternative is in the way of home heating oil or electricity.

That, as we said earlier, is the greater risk, if he has to go to that.

Mr. Seiberling. What do you expect costs of these competing fuels will be; namely, oil, coal, and nuclear in 1987?

Mr. Lawrence. I am not sure I could nail down 1987. But today the price of home heating oil versus natural gas is about twice as high.

Mr. Seiberling. I am well aware of that, because my house in Ohio is heated by oil.

Mr. Lawrence. Right; and the recent studies by the Department of Energy has, I think, home heating oil in the range of 50 percent higher in the year 1990. So in the year 1987, it would fall somewhere in that range.

Mr. Seiberling. That is certainly not as high as $17.50 a thousand cubic feet or million Btu's, is it?

Mr. Lawrence. Well, again, I think the way the tariffs will be constructed and costs amortized over the years of the project that that, and again, I feel better with the term $9.20 or $9.35——

Mr. Seiberling. That is in the range of oil, though, isn't it—$9.25? Isn't that the equivalent of oil?

Mr. Lawrence. That is higher than oil today certainly. That is about $55-a-barrel oil, compared with, we are in the range of $35 now. But over the life of this project, again it is very competitive with oil.

Mr. McGrath. Also remember, Congressman, let me interject, that you are rolling in the cost of the Alaskan gas with your existing lower 48 supplies.

Your average cost will be lower.

Mr. Seiberling. That certainly will make a difference. Let me ask you one other thing. Suppose this cost of this pipeline, which I guess is around $35 billion in 1980 dollars, and if you add interest, something like $58 billion, I believe were the figures we got the other day. Is that right?

Mr. McGrath. No; those are high.

Mr. Seiberling. Well, I am talking about the treatment plant and the whole works.

Mr. McGrath. It would be about $25 billion. You add in the additional cost, about $40 billion estimated.

Mr. Seiberling. Then when you add in the interest, it gets up around $58 billion.

Mr. McGrath. No; I haven't seen that figure.

Mr. Seiberling. Well, that was in the testimony we had last week. Now, if we invested this money in solar energy research and development, and research and development in other renewable sources of energy, and conservation programs, wouldn't that advance us even farther toward energy self-sufficiency than putting that money in this pipeline?

Mr. McGrath. I doubt it. We are not against the research effort on solar energy. Solar certainly has a great potential. But we know we have 26 trillion cubic feet of natural gas in the Prudhoe Bay area, proved reserves.

Mr. Seiberling. What about Mr. Weaver's suggestion, or as suggested by a scientist he consulted, that instead of continuing with this pipeline, we build a plant at Prudhoe Bay to convert it to methanol and ship it through the pipeline along with the oil?

Apparently the cost would be far, far less. What about this as an alternative?

Mr. Lawrence. I think the short answer to that is the producing companies up there, Exxon, Arco, and Sohio, have given a great deal of attention to that as an alternative and have rejected it.

I am sure over the long delay that they have had in marketing both their oil supplies and certainly now their natural gas supplies, they would have been willing to avail themselves of any alternative to set this up.

So I guess they disagree with the gentleman from Stanford.

Mr. Seiberling. Well, thanks, I appreciate having your testimony.

Mr. Lawrence. Thank you, sir.

Mr. Sharp. Gentlemen, we have a vote on at the moment. So if you can stay with us, we will recess for about 10 minutes, perhaps 15, and then continue.

[Brief recess.]

Mr. Sharp. Mr. Lawrence, Mr. McGrath, I think the one thing that must be readily apparent to many of you that continues to trouble members of the committee, is whether or not we are contributing to locking our consumers into a potential boondoggle by supporting the waivers. Are we locking them into costs we can't justify that they will have to pay,where they are going to lose, with respect to how these waivers relate to part of the law affecting this proposal and part of the tariff structure that is presumed to be in place?

If someone would assure us we weren't doing that, I think we would all endorse instantly this proposition. I guess what I want to ask you is, is it a bogus argument that is being made to us and coming up in the questions constantly, that this pipeline could well be completed? In other words, the prebilling thing may not be relevant, it may get completed, but literally nobody is going to want to buy the gas; it is too expensive.

And yet, if I understand the tariff schedule properly, if the gas flows, you will pass along industrial costs as a demand charge through your system to all of our consumers. We really haven't addressed industrial costs, although you have given us some figures on average residential costs.

Are we wrong? Do we misperceive the incentives that there is a risk that that will happen?

I think the thing all of us have difficulty comprehending is where do the incentives and disincentives lie in the proposal for this pipeline.

Mr. LAWRENCE. We do not think that is a substantial risk, Mr. Chairman. We think this gas will be marketable. We think the Department of Energy's own estimates and certainly our own demand estimates are even going to be more optimistic.

But the Department of Energy's own estimates are that natural gas price, including the Alaska gas pipeline project, is going to be very, very competitive. In fact, substantially cheaper than the alternative of fuel oil or electricity.

I think as to the—such comparisons as to the capital efficiency of the various alternatives, with your permission, Mr. Chairman, I would like to introduce in the record an analysis that AGA prepared on October 20, 1980, entitled, "Comparison of Initial Capital Investment Requirements for New Domestic Energy Supplies."

It is responsive, I think, and will help expand on the point that Congressman Seiberling raised.

Mr. SHARP. Without objection, we will definitely make that a part of the record.

[Testimony resumes on p. 857.]

[The analysis referred to follows:]

ENERGY ANALYSIS

A.G.A.
American Gas
Association

Policy Evaluation & Analysis Group
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209
703 841 8400

1980-12 October 20, 1980

COMPARISON OF INITIAL CAPITAL INVESTMENT REQUIREMENTS FOR NEW DOMESTIC ENERGY SUPPLIES: 1980 UPDATE

A. Introduction

In an effort to decrease U.S. dependence on foreign energy sources, a number of new domestic supply options are being pursued, including coal gasification, oil shale, unconventional natural gas, Alaskan resources, and solar energy. However, the development of major new domestic energy sources will entail substantial capital investments. Therefore, one of the paramount decisions public and private sector energy planners face is the selection of capital-efficient and cost-effective strategies for supplying energy from domestic sources.

The purpose of this report is to update A.G.A.'s analysis of two years ago comparing the initial capital investment requirements for a number of domestic sources which could contribute substantial quantities of energy by the mid to late 1980's. The estimates of average capital requirements developed in this analysis include resource extraction, processing and conversion, transmission and distribution, and the cost of end-use equipment for each market. This full energy cycle, or system from source to end-use, is referred to in this analysis as an energy "trajectory". Because the efficiency of a particular energy trajectory directly impacts the level of capital investment required to utilize a given quantity of usable energy (e.g., one quadrillion Btu's "at the burner-tip"), average thermal efficiencies and energy losses in each step are also considered as part of this analysis.

Energy supply increases for three end-use applications are compared in this analysis with regard to initial capital investment requirements:

- Residential and small commercial spaceheating.
- Premium industrial (e.g., process or feedstock), usage.
- Industrial boilers for steam and/or electrical generation.

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B. Executive Summary of Results of Analysis

As a rule, domestic energy supply and utilization systems based on gaseous fuels require substantially less initial capital investment than equivalent nuclear, coal and solar electric systems or synthetic liquids-based systems (see Table 1).

- Residential and Small Commercial Spaceheating. On a national average basis, supplying added quantities of gaseous fuel from domestic resources for residential and small commercial spaceheating would require 11 to 37% less initial capital than electrification for the same amount of useful heat energy.
  - The initial investment required to supply an additional annual quadrillion Btu's (quad/yr) of new coal-fired and nuclear-based electricity for electric spaceheating utilizing a heat pump in residences and small commercial applications ranges from $77 billion to $94 billion ($ 1980).
  - By contrast, the initial investment required to supply an additional annual quad of new domestic gaseous fuel (other than from new lower 48 sources) for residential and small commercial spaceheating using a pulse combustion furnace is estimated to range from $64 billion for gas supplies from Alaska to $68 billion for high-Btu coal gasification.
  - Provision of liquid fuel (distillate oil) from shale or coal for residential and small commercial heating would require even greater capital investment than either gas or electric energy for the same purpose. On the average, gaseous and electric trajectories would require 32% and 7% less capital investment per quad, respectively, than would the average liquid fuel trajectory. It is also concluded that electricity generated from synthetic liquid fuel is the most capital intensive option of all those examined for this market (with the exception of solar energy -- see below), requiring $98-101 billion per quad.
  - Preliminary investment estimates included for comparison purposes, for a quad of solar residential and small commercial energy, are $257 billion for solar thermal, and $139-$1,430 billion for solar photovoltaic. This range reflects assumptions based on current costs versus the 1986 Department of Energy goal.
- Premium Industrial Usage. Supplementing premium industrial requirements (e.g., process, feedstock) with domestic gaseous fuels is also highly capital efficient relative to new electric or synthetic liquid systems.

Table 1

SUMMARY

CAPITAL INVESTMENT REQUIRED TO EXTRACT, PROCESS, DELIVER AND USE A UNIT OF NEW DOMESTIC ENERGY SUPPLY

(1980 $ Billions per annual burner tip quad)

Energy Source	Residential/Commercial Spaceheating	Premium Industrial	Large Boiler
Natural Gas			
Alaska-North	$65.1	$43.6	$31.3
Alaska-South	63.6	42.0	29.6
Coal Gasification			
High Btu	68.1	48.1	-
Medium Btu	-	-	33.4
Coal Liquefaction			
Electric Generation (SRC II)	101.4	134.0	-
Liquids (Fischer Tropsch)	109.5	88.3	-
Liquids (SRC II)	-	-	35.6
Coal Electrification			
Plant Near End-User	81.4	91.1	-
Plant Near Coal Source	94.0	105.5	-
Combined Cycle	76.6	83.2	-
Coal Direct			
Scrubbers	-	-	20.6[1]
Fluidized Bed	-	-	17.6[1]
Shale Oil			
Electric Generation	98.2	127.4	-
Liquids	83.4	56.9	31.7
Nuclear Electric	84.3	97.1	-
Solar			
Thermal	256.9	-	-
Photovoltaic			
(Current)	1,428.0	1,981.8	-
(1986 DOE Goal)	139.4	164.3	-

Sources: See Appendix Tables A-1, A-2 and A-3.

[1] Cannot comply with most state implementation plan regulations for non-attainment areas.

Note: Dash indicates no analysis performed for this trajectory.

  - Gaseous sources are roughly one-half as capital intensive (twice as capital efficient) as are comparable electric sources. The investment requirement per quad averages $45 billion for the gaseous systems considered, as compared with over $90 billion for the electric systems.
  - To derive one quad from shale oil or coal liquefaction for direct usage would require investments of $57 to $88 billion respectively, while the cost of converting these liquids to electricity for the premium industrial market would be roughly $130 billion.

- Industrial Boilers. Gaseous systems can supply energy to large industrial boilers at a lower level of capital investment than can synthetic liquid systems ($32-36 billion vs. $30 billion), although the cost per quad would exceed the cost associated with direct coal combustion ($21 billion).

C. Methodology

Only those energy systems which could appreciably increase domestic energy supplies (gaseous, liquid, solid fuels, solar energy, and electricity) during a 0-10 year time-frame were included in this comparison. For example, conventional and unconventional lower-48 state gas and oil supplies are not included in the comparison because their net contribution during this time period is not expected to increase, but to remain stable with new supplies offsetting declining production from existing wells. Thus, only domestic sources which could physically increase overall energy supplies to the nation were considered. Generally speaking, this comparison focuses on capital costs of provision and use of secondary energy forms (e.g., synthetic fuels and electricity) usually associated with large-scale capital-intensive projects based on existing technology.

Since only potential supply increases are compared, no conservation options are included in this analysis, even though such options may also have capital efficiency advantages.

The capital investment estimates contained in this analysis include the following cost elements for each energy trajectory:

- Resource extraction (e.g., drilling, mining, etc.).
- Processing of resource from raw state to usable form (e.g., gas processing, oil refining, coal cleaning, etc.).
- Conversion of energy from one form to another, such as coal-to-gas or oil-to-electricity.
- Transmission from point of processing/conversion to general locale of end-use, or from the point of extraction to the point of processing/conversion.

- Distribution to users.
- Installation at the point of end-use of the equipment needed to utilize the energy (e.g., cost of spaceheaters, boilers, etc.).

The following procedure was followed for comparing each energy trajectory in this analysis.

1. Recently published capital cost data on each trajectory element (i.e., on extraction, processing, etc.) were assembled and evaluated. Cost estimates were arrived at by selection or analysis (see Tables 2 and 3), and all costs were converted to mid-1980 dollars by application of the implicit GNP price deflator.
2. Similarly, recently published data on energy "losses" at each step of the trajectory (thermal efficiencies, physical losses, heat pump coefficients of performance, etc.) were analyzed and estimates were developed (see Table 4).
3. For spaceheating applications, gas, liquids, and solar thermal system trajectories were penalized by adding the capital cost of electric central air conditioning to the other capital costs of the trajectory, in order to compensate for the total "space conditioning" (heating and cooling) capability of the electric heat pump.
4. Using data in Table 4 along with other information, the capital cost estimates in Tables 2 and 3 were normalized on the basis of providing one added annual quad "at the burner-tip" (i.e., delivered into the end-use room or process by the end-use device). In other words, capital costs at each step were increased by an amount reflecting losses further along the way up to and including the end-user, so that all end-users would receive the benefit of one quad per year (see Appendix). Thus, less efficient systems require relatively greater amounts of capital investment.

   To illustrate, the extraction of 1 quad of coal annually, approximately 44 million tons, would require a capital investment of $2.9 billion ($65 per annual ton). However, in order for premium industrial end-users to have the benefit of 1 quad of energy, considering energy losses from the point of production to the point of consumption, 103 million tons of coal would have to be extracted annually at a capital investment of $6.7 billion (assuming high-Btu coal gasification).

Table 2

DETAIL

PER-PROJECT CAPITAL INVESTMENT REQUIRED TO EXTRACT, PROCESS AND DELIVER NEW DOMESTIC ENERGY SUPPLIES

($ 1980)

Energy Source	Project Description	Extraction	Processing	Conversion	Transportation/ Transmission	Distribution
Natural Gas						
Alaska-North	Production & Transportation of 2.4 Bcfd via 4800 mi. Pipeline	$.92/Mcf	$2.800 Bil./ Plant	-	$15.8 Bil. (Pipeline)	$50,000/mi.
Alaska-South	LNG Shipment of 400 MMcfd from Alaska to California	$.92/Mcf	-	$1.555 Bil. (Liquefy & Gasify)	$.895 Bil (Tankers)	$50,000/mi.
Coal Gasification						
High-Btu	300 MMcfd via Lurgi Process	$65/A.T.	-	$1.800 Bil /Plant	$400,000/mi. (Pipeline)	$50,000/mi.
Medium-Btu	175 MMcfd via U-Gas Process	$65/A.T.	-	$.423 Bil./Plant	$14/A.T. (Coal)	$10.8 Mil./Plant
Coal Liquids						
For Electric Generation	SRC-II Process, Coal Input 40,000 Tons/day	$65/A.T.	-	$.661 Bil. (Power Plant) $4.430 Bil. (Liquefaction Plant)	$236,000/mi. (Pipeline)	$300 Mil./Plant
Liquid for Direct Usage	Fischer Tropsch Process, Coal Input 40,000 Tons/day	$65/A.T.	-	$6.202 Bil./Plant	$236,000/mi. (Pipeline)	$100 Mil./Plant
Coal Electrification						
Plant Near End-User	1000 MW Coal-Fired Steam Plant	$65/A.T.	$11/A.T.	$ .972 Bil./GW	$14/A.T. (Coal)	$300 Mil./Plant
Plant Near Coal Source	1000 MW Coal-Fired Steam Plant	$65/A.T.	$11/A.T.	$ .972 Bil./GW	$350,000/mi. (Electricity)	$300 Mil./Plant
Combined Cycle	1000 MW, Texaco Gasifier	$65/A.T.	$11/A.T.	$1.016 Bil./GW	$14/A.T. (Coal)	$300 Mil./Plant
Coal Direct						
Scrubbers	200,000 Pounds per Hour Steam Boiler, Field Erected	$65/A.T.	$11/A.T.	-	$14/A.T. (Coal)	-
Fluidized-Bed	200,000 Pounds per Hour Steam Boiler, Field Erected	$65/A.T.	$11/A.T.	-	$14/A.T. (Coal)	-
Shale Oil						
For Electric Generation	50,000 Bbl/day, Above Ground Retort	$2.021 Bil./ Plant	-	$.661 Bil. (Power Plant)	$105,000/mi. (Pipeline)	$300 Mil./Plant
Liquid for Direct Usage	50,000 Bbl/day, Above Ground Retort	$2.021 Bil./ Plant	$.8[illegible] Bil. (Refinery)	-	$105,000/mi. (Pipeline)	$ 50 Mil./Plant
Nuclear-Electric	1000 MW Light Water Reactor	$.096 Bil./GW	$.115 Bil./GW	$1.154 Bil./GW	Negligible	$300 Mil./Plant
Solar Photovoltaic	-	-	-	$20/Peak Watt	-	

Sources: The source documents from which each of these estimates was obtained, as well as a discussion of any adjustments to published estimates which were made to insure comparability, are contained in Section E of this analysis.

Note: A.T. = Annual Ton

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Table 3

DETAIL
PER INSTALLATION CAPITAL INVESTMENT REQUIRED FOR END-USE EQUIPMENT
($ 1980)

Delivered Energy Source	Residential/Commercial Spaceheating[1]	Premium Industrial[2]	Boiler[3]
Natural & Supplemental Gas	$ 1,972	$5,880,000	$ 3,713,000
Electricity	1,402	4,704,000	-
Coal (Scrubber)	-	-	17,867,000[4]
(Fluidized Bed)	-	-	14,294,000[4]
Oil	2,197	5,938,000	5,580,000
Solar Thermal	12,847	-	-
Solar Photovoltaic	1,402	4,704,000	-

1/ Installed capital cost, excluding duct work. Assumes a space heating device adequate to heat a 1,700 square foot single family dwelling. Cost of central air conditioning added to gas, oil and solar thermal systems in order to provide comparability with the electric heat pump.

2/ Assumes glassmaking: 500 ton per day flat glass furnace

3/ 200 MPPH (thousand pounds per hour of steam) field erected steam boiler including all applicable pollution control equipment.

4/ Cannot comply with most state implementation plan regulations for non-attainment areas.

Sources: The source documents from which each of these cost estimates was obtained as well as any adjustments to published estimates which were made to insure comparability, are contained in Section E of this analysis.

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Table 4

THERMAL EFFICIENCIES OF NEW ENERGY SOURCES

(Percent)

	Efficiency to the Point of Consumption					Efficiency at the Point of Consumption		
	Extraction	Processing	Conversion	Transportation/ Transmission	Distribution	Residential/Commercial Spaceheating	Premium Industrial	Large Boiler
Natural Gas								
Alaska-North	99.3	96.7	-	91.6	97.1	95.0	70.0	87.0
Alaska-South (LNG)	99.1	-	90.5	95.6	97.1	95.0	70.0	87.0
Coal Gasification								
High Btu	99.4	-	65.1	97.3	97.1	95.0	70.0	
Medium Btu	99.4	-	72.7	97.5	97.1	-	-	87.0
Coal Liquids								
Electric (SRC II)	99.4	77.0	35.2	98.1	91.6	199.8	95.0	89.0
Liquid (Fischer Tropsch)	99.4		45.0	98.1	98.1	84.4	70.0	-
Coal Electrification								
Plant Near End-Uses	99.4	90.0	35.0	97.5	91.6	199.8	95.0	-
Plant Near Coal Source	99.1	90.0	35.0	91.0	91.6	199.8	95.0	-
Combined Cycle	99.4	90.0	16.9	97.5	91.6	199.8	95.0	-
Coal Direct								
Scrubbers	99.3	90.0	-	97.5	-	-		88.0
Fluidized-bed	99.4	90.0	-	97.5	-	-		85.0
Shale Oil								
Electric	6.6	-	35.2	98.1	91.6	199.8	95.0	-
Liquid	76.6	95.0	-	98.1	98.1	44.4	70.0	89.0
Nuclear Electric	91.6	57.0	31.9	100.0	91.6	199.8	95.0	-
Solar								
Thermal	-	-	-	-	-	55.0	-	-
Photovoltaic	-	-	20.0	-	-	199.8	95.0	-

Sources: The source documents from which each of these efficiency estimates was obtained are set out in Section E of this analysis.

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5. The estimated total capital requirements shown in Table 1 (and in the last column of each of the Appendix tables) are the sum of the normalized capital cost estimates for each step of the energy trajectory -- i.e., extraction, processing, conversion, transmission, distribution and end-use, as adjusted for efficiencies.

D. Project Descriptions

The following section gives a brief description of the various energy projects upon which the capital cost estimates in Section E and Table 2 are based. It should be emphasized that although certain elements of a particular energy trajectory may be based on an actual project, others may not. For example, the processing, conversion and transportation segments of the North Alaskan and South Alaskan trajectories are based on the projected capital investment requirements of two specific gas supply projects which are currently in the advanced engineering construction phases. However, the average capital cost of gas distribution($50,000 per mile) added to the cost of all gas supply projects is generic, and it is not associated with any individual project. That is, the South Alaskan LNG project will entail only minimal, if any, distribution system additions in southern California, although added gas distribution capital requirements have been included in this trajectory. Similarly, the North Alaskan gas extraction cost of 92¢/Mcf overstates the amount of capital required for the extraction of Prudhoe Bay gas, as the gas required for this project has already been found, and the development of this source will require far less investment than would drilling in virgin areas. For the purpose of comparison, however, all energy systems are based on the assumption that capital will be required from the "ground up". That is, from the point of energy production to the point of consumption.

The projects discussed herein are as follows:

1. Natural Gas

   - Alaska-North refers to a project which would produce 2.4 Bcfd at Prudhoe Bay, process this gas by removing hydrogen sulfide, etc., and transport this gas via a 4,800 mile pipeline for distribution to markets in the West and Midwest U.S. regions. The Alaska-South project would produce and liquefy some 400 MMcfd for transportation by cryogenic LNG tankers to a terminal located in California, where the LNG would be regasified and distributed. Both gas sources would serve all three markets considered -- residential/commercial, premium industrial and industrial boilers.

2. Coal Gasification

- The high-Btu gas energy trajectory reflects the extraction of some 30,000 tons of sub-bituminous coal per day for gasification using the Lurgi process followed by a methanation step. Approximately 300 MMcfd of pipeline quality gas would be produced daily and transported by a 500-mile 24-inch pipeline to a distribution center. The medium-Btu gas system is based on the extraction of roughly 3,000 tons of coal per day, and the shipment of this coal by unit train to a gasification plant located 500 miles away. The coal would be gasified, 175 MMcfd at 300 Btu's per cubic foot, using the U-Gas process, and then distributed to nearby industrial facilities for fuel use. In this analysis, the high-Btu project is assumed to serve all gas uses except industrial boilers, for which medium-Btu gas is a more economic option. The medium-Btu project, conversely, is assumed to serve only industrial boilers, (although some medium-Btu coal gas is expected to be consumed in special premium industrial applications as well).

3. Coal Liquefaction

- Two liquefaction processes were considered: the SRC II process which would provide liquid fuel for industrial boiler fuel consumption, or for electrical generation by utilities which would then serve residential/commercial and premium industrial markets; and the Fischer Tropsch process which would produce a higher quality fuel for residential/commercial or premium industrial consumption. Each type of project would require the extraction of 40,000 tons of coal per day and the conversion of this coal to a liquid fuel. The product of the SRC II plant, roughly 100,000 bbl/d, would be shipped by a 500 mile pipeline to an electric utility for the generation and distribution of electricity, or to a terminal for distribution to boiler fuel customers. The Fischer Tropsch project would also ship about 100,000 bbl/d by a 500 mile pipeline to a terminaling center for distribution by a tanker fleet.

4. Coal Electrification

- Three types of 1,000 MW coal-based electric power plants were considered: a coal-fired plant located near the end-use market; a combined-cycle unit utilizing a Texaco Gasifier; and a coal-fired plant located at the mine-mouth. The first two alternatives would require the extraction and cleaning of coal, and transportation by unit train 500 miles to the generating station for conversion and electrical distribution. The mine-mouth plant would produce electricity at the coal site for transmission via a 500-mile 500-kv EHV power line to distribution centers. Electricity serves residential/commercial and premium industrial markets regardless of generation fuel.

5. Coal Direct

   - The direct combustion of coal by large industrial boilers (200 thousand pounds per hour of steam MPPH) was considered for two types of units -- one with a limestone scrubber flue gas desulfurization system, and the other utilizing atmospheric fluidized bed combustion. Coal for these boilers would be extracted and transported 500 miles by rail.

6. Shale Oil

   - A 50,000 bbl/d shale oil facility was considered as an energy source which could accommodate any of the three markets with a liquid fuel, and which could also serve the residential/commercial market via the use of shale oil for electrical generation. Shale oil would be extracted at an underground-mining-aboveground-retorting complex. The liquid extracted would either be shipped directly by pipeline 500 miles to power plants or terminaling facilities for distribution to industrial boiler customers; or it would be refined at the point of extraction/conversion prior to transportation and distribution to residential/commercial and premium industrial customers.

7. Solar

   - The solar thermal power system involves the direct conversion of solar energy to thermal energy, and subsequent conversion of the thermal energy to mechanical energy. This energy source, which is technically feasible only for the residential/commercial spaceheating market, has no extraction, processing, conversion, transportation or distribution capital investment requirements. The only cost associated is that of the end-use device. The solar photovoltaic system converts sunlight directly into electricity, and the only capital investments required for this system are for energy conversion and end-use equipment (premium industrial and residential/commercial markets).

8. Nuclear Electric

   - The other electrical generation alternative considered was a 1,000 MW nuclear light water reactor. This unit would entail the mining and milling of uranium, fuel enrichment and fabrication, and rail transporation to the reactor for electricity generation and distribution.

It should be noted that all systems which would deliver electrical energy to the residential/commercial spaceheating market have been adjusted to account for the increased peaking capacity requirements attributable to the relatively high efficiency of the electric heat pump. Although a heat pump operating at moderate temperatures may be able to attain efficiencies exceeding 100%, this efficiency factor would decline to approximately the same level as that of electric resistance heating during colder weather. The electric utility industry would have to be able to accomodate these peaks, and thus capacity requirements for electrical generation and distribution would be the same regardless of whether heat pumps or resistance heating were utilized.

To account for this situation, the capacity requirements of all electric systems were calculated assuming heat pump deployment and resistance heating deployment, and the difference in these two capacities was considered the peaking capacity requirement. The base-load capacity requirement was used to calculate capital requirements for each of the base fuels -- coal, nuclear, oil, etc. The peaking capacity capital requirement was then estimated based on the cost of oil-fired peaking units and added to the base capital requirements. The resultant total capital requirement is indicated throughout this analysis.

E. Capital Cost Estimates - Sources and Assumptions

The sources of the capital cost data referred to in step 1 of the methodology are cited below, as are any adjustments which were made to the referenced data.

Again, all costs were adjusted to mid-year 1980 dollars. Thus, given current and expected inflation rates, the nominal cost of multi-year projects could be significantly greater, than the estimates contained herein.

1. Extraction

   - The Alaskan gas extraction cost of 92¢/Mcf (applied to both North and South Alaska) reflects the costs of lease acquisition, exploration, development, production and dry holes based on Alaskan gas expenditures and reserves added from 1971 through 1978. Drilling costs and reserves data were obtained from annual issues of: American Petroleum Institute, Independent Petroleum Association of America and Mid Continent Oil and Gas Association, Joint Association Survey of the U.S. Oil and Gas Producing Industry, and the American Petroleum Institute, American Gas Association, Canadian Petroleum Association, Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada, respectively. Drilling costs were increased by a factor of four to derive total capital costs (see 1974 Joint Association Survey, Section II, pp. 1-4 for justification of this estimation factor).

   - The coal extraction cost of $65/annual ton is the weighted average of: underground mined coal (28 percent weight, $83/annual ton), Eastern surface mined coal (20 percent, $121/annual ton), Midwestern surface mined coal (20 percent, $65/annual ton), and Western surface mined coal (32 percent, $13/annual ton). Regional weights (estimated by the D.O.E. for 1985) and capital costs were taken from: the President's Commission on Coal, Coal Data Book, (Washington, D.C.: Govt. Printing Office, February, 1980), pp. 87, 95 and 117.

   - The capital investment required to extract shale oil is estimated at $2.021 billion per plant. This estimate is based on the production of 50,000 bbl/day of shale oil syncrude using underground mining and aboveground retorting as set out in: Office of Technology Assessment, Congress of the United States, An Assessment of Oil Shale Technologies, Washington, D.C.: Govt. Printing Office, June, 1980),

p. 480. The OTA estimate does not include an allowance for funds used during construction, AFUDC, and it was therefore increased by 10 percent so as to be comparable with all other estimates in this analysis.

- Capital investments for uranium mining and milling required for nuclear generated electricity are estimated at $.094 billion/GW as taken from: Leonard Reichle, Ebasco Services Inc., The Economics of Nuclear versus Coal, presented before the Richmond Society of Financial Analysts in October of 1979, Table 13.

2. Processing

- Processing of the 2.4 Bcfd of North Alaskan gas produced at Prudhoe Bay will require the construction of a $2.8 billion conditioning facility. (South Alaskan gas processing takes place at the liquefaction facility, and these costs are included under "conversion" on Table 2.) Cost estimates were obtained from the D.O.E. Alaskan Gas Project Office, and were referred to as the "most recent estimates of the sponsoring companies."

- Coal must be "prepared" prior to combustion, and the level of preparation may vary greatly depending on the end-use application. The $11/annual ton coal preparation charge reflects a "mid-level" preparation (½ inch, wet beneficiate, + 28 M) as set out in: Richard A. Schmidt, Coal in America, (McGraw Hill: 1979), p. 286. The coal preparation charge is not applied separately to the coal gasification or coal liquefaction systems, as this cost is included in the capital cost of the liquefaction and gasification plants (under "conversion" on Table 2).

- It is assumed that shale oil must be refined prior to combustion except for large industrial boilers and electric utility applications. The cost of a 50,000 bbl/day shale oil refinery is estimated by: H.A. Frumkin, Chevron Research Company, Refining and Upgrading of Synfuels from Coal and Oil Shales by Advanced Catalytic Processes, Fourth Interim Report for Processing of Parahoe Shale Oil, prepared for U.S. D.O.E., June 1980, Table II.

- Processing costs for nuclear generated electricity of $.115 billion/GW include investments required for enrichment and fabrication, but not for recovery or spent fuel management. See: Reichle, Ebasco Services Inc., The Economics of Nuclear versus Coal, presented before the Richmond Society of Financial Analysts in October of 1979, Table 13.

3. Conversion

- South Alaskan gas conversion costs include the costs of both liquefaction ($.771 billion) and regasification ($.784 billion) facilities. Cost estimates, which were provided by Western Terminal LNG Associates, represent the most recently filed estimates presented by the project sponsors to various regulatory agencies.

- The cost of a 300 MMcfd high-Btu gas plant, $1.8 billion, is based on the Wyoming Coal Conversion Project of Panhandle Eastern Pipe Line Company. Cost estimates are as submitted by Panhandle Eastern to the D.O.E. in its cooperative agreement proposal of May, 1980. The Lurgi process/Texaco gasifier will be employed.

- The medium-Btu gas conversion estimate of $.423 billion reflects the 175 MMcfd project of Memphis Light, Gas and Water Division, operating under contract with the D.O.E. These estimates for the 175 MMcfd U-Gas project are contained in a status report submitted by Mr. Pravin Thakkar of MLGW in January of 1980.

- Two types of coal liquids plants were used in this analysis, each with a 40,000 ton per day coal input. A heavy products SRC II plant, $4.430 billion, was assumed to supply large industrial boilers and electric utilities, while a Fischer Tropsch unit, $6.202 billion, was assumed to supply premium industrial and residential/commercial markets with higher quality distillate fuel oil. These estimates are based on the expected cost of a 30,000 ton/day SRC I plant, $3.570 billion, as presented by the President of International Coal Refining. See: Chemical Week (Chicago: August 13, 1980) p.35. It was assumed that the cost of the SRC I and SRC II plants will be approximately equal, and the cost of the 30,000 ton/day SRC I plant was increased by a scaling power factor of .75 to obtain the cost of a 40,000 ton/day facility.

This cost, $4.430 billion, was then increased by 24 percent to obtain the cost of a more expensive Fischer Tropsch unit. The 24 percent factor was acknowledged by the D.O.E. and by the Institute of Gas Technology, See: Institute ot Gas Technology Coal Liquefaction Processes, (Chicago: July, 1979), p. XIV.C.2.

- Capital requirements for the 1000 MW electric power plants used herein were taken from: Electric Power Research Institute, Technical Assessment Guide, (Palo Alto: July, 1979), Section 8. Cost estimates range from $.661 billion for a residual oil-fired plant to $1.154 billion for a nuclear based electric unit. EPRI presents two estimates for each plant, an "end-of-year" startup estimate which includes AFUDC (allowance for funds used during construction) and an "overnight-construction-cost" estimate which excludes AFUDC. The "overnight" estimate was used in this report, and an estimate was made for AFUDC (so as to be comparable with all other estimates in this analysis) assuming that the ratio of AFUDC to total capital investment was the same as in the "end-of-year" case. The estimated AFUDCs range from 10 to 20% of total capital costs.

- The capital investment requirement for residential/commercial solar photovoltaic conversion is estimated at $70,000 per unit ($20 per peak watt, 3.5 kw peak) given the current state of the technology. If the 1986 D.O.E. goal is met, this figure will be reduced to approximately $5,567 per unit ($1.25 per peak watt). See: U.S. Department of Energy, Solar Energy Status Report, (Washington, D.C.: U.S. Govt. Printing Office, June, 1978), p. 26. The premium industrial conversion estimate of $1,974 per MMBtu is based on a current cost of $20 per peak watt, and the generation of 8.13 watt-hours per day, per peak watt of capacity. From: American Society of Heating, Refrigeration, and Air Conditioning Engineers, Inc., ASHRAE Handbook and Product Directory: 1978 Applications (New York: 1978), p. 58.5. Assuming the same rate of reduction for the 1986 D.O.E. goal as for residential/commercial applications, this industrial cost could be reduced to $157 per MMBtu.

4. Transportation/Transmission

- Natural gas from Prudhoe Bay (Alaska-North) will be transported via a 4,800 mile pipeline to distribution centers in Northern California and in the Chicago vicinity. The cost of this pipeline, including all compressor stations, metering facilities, etc. is estimated at $15.8 billion. This estimate was obtained from the D.O.E. Alaskan Gas Project Office, and it was referred to as the "most recent estimate of the sponsoring companies." (The cost of the conditioning plant is included under "processing.") Gas from South Alaska will be shipped via cryogenic LNG tankers approximately 2,400 miles to Point Conception, California. According to Western Terminal LNG Associates, the most recently filed cost estimates project expenditures of $.540 billion for tankers, $.253 billion for transmission line in Alaska, and $.102 billion for transmission line in California. The total investment requirement for transmission of South Alaskan LNG is thus set at $.895 billion.

- It is likely that most high-Btu gas plants will be constructed at the mine-mouth, rather than in proximity to end-use markets,as a result of relative transportation economics. In this hypothetical example, it is assumed that a 500-mile 24-inch pipeline would be constructed to move gas to distribution centers. The cost of a 24 inch pipeline is estimated at $400,000 per mile, including $48,000 per mile for compressor stations ($800 per horsepower, 60 horsepower per mile). See: Earl Seaton, "Pipeline Economics," Oil and Gas Journal, (Tulsa: August 11, 1980), p.63.

- The cost of a unit train to move 1 million tons of coal per year, including locomotives and hoppers, is estimated at approximately $7 million ($7 per annual ton) according to Richard A. Schmidt, Coal in America, (McGraw Hill: 1979), p. 302. An additional investment of $5.60 per ton would be required for right-of-way, under the assumption that the ratio of rolling stock to right-of-way capital requirements is 55:45. See: The President's Commission on Coal, Coal Data Book, (Washington, D.C.: February, 1980), p. 201. Rotary dumper requirements of $1.40 per ton bring the total capital investment requirement to $14 per annual ton.

- Most existing coal-fired power plants are located near ultimate electric markets. The hypothetical 1000 MW plant "near the coal source" would transport electricity via a 500-mile 500-kv transmission line at $350,000 per mile, as estimated by: the Electric Power Research Institute, Technical Assessment Guide, (Palo Alto, California: July, 1979), p. 9-2.

- It is assumed that a 12 inch oil pipeline would be used to ship products from liquefaction sites to terminaling facilities. The cost of this pipeline is estimated at $236,000 per mile (100,000 bbl/d), in comparison with $105,000 per mile for a smaller volume (50,000 bbl/d) pipeline for oil shale facilities. See: Earl Seaton, "Pipeline Economics," Oil and Gas Journal (Tulsa: August 11, 1980), p. 63.

5. Distribution

- The investment required to move Alaskan or high-Btu gas in new systems from the city-gate to the end-user is estimated at $50,000 per mile, the median cost quoted for 11 current major distribution expansion projects in: "World-Wide Construction Scoreboard," Pipe Line Industry, (Houston: Gulf Publishing Co., May, 1980), pp. 61-64. It is assumed that distribution mileage added will be roughly double the mileage of transportation system additions, as indicated in: American Gas Association, Gas Facts 1978, p. 55.

- The capital cost estimate for distributing medium Btu gas, $10.8 million per plant, is reflective of the Memphis Light, Gas and Water project. Gas will be distributed via some 30 miles of new pipe (including 3 to 5 miles of large diameter pipe) to a nearby industrial park. This type of arrangement represents a "typical" medium Btu gas project configuration. Estimates were obtained from Mr. Pravin Thakkar of MLGW.

- Transmission and distribution expenditures account for approximately one-third of the cost per KW of new electrical generation additions according to: Electric Power Research Institute, Overview and Strategy, (Palo Alto: July, 1979) p. II-52. The cost of a coal-fired generating station near the coal source is estimated at $.972 billion, and the cost of transmission system additions is set at $.175 billion ($350,000 per mile, 500 miles). Thus, distribution system capital expenditures are estimated at $.300 billion per plant, based on the "one-third" relationship noted above. This $300 billion figure was used for all power plants.

- Terminaling facilities for oil distribution (100,000 bbl/d are estimated at $60 million, based on a capital outlay of $16/bbl and 10 turnovers per year: ICF Incorporated, prepared for Congressional Budget Office, Economic Considerations in Industrial Boiler Fuel Choice, (Washington, D.C.: June, 1978), Appendix B. In addition, roughly $40 million would be required for some 800 tankers (3,000 gal) at $50,000 per truck. (Information provided by Exxon and Aitcheson Fuel Co. Inc.) Thus, distribution expenditures of $100 million per plant are assumed for coal liquids (100,000 bbl/d), and $50 million for shale oil (50,000 bbl/d).

6. End-Use Equipment

- The installed capital cost for conventional residential/commercial spaceheating equipment (excluding duct work) is based on the requirements of a 1,700 square foot single-family home in Federal Region 3 (moderate temperature Mid-Atlantic Region). These data, set out at Table 3, were obtained from: Resource Planning Associates, Market Penetration and Associated Benefits of Improved Gas Furnaces, (Washington, D.C.: July, 1980), p. 1.4. Installation charges were not published in this report, but they were obtained directly from the author. The cost of central air conditioning was added to the cost of all systems other than the heat pump in order to insure comparability.

  The cost of a solar (thermal) residential/commercial system, $12,847, is from Vern J. Hellenbrand, "Solar Economics", Solar Heating and Cooling Systems Operational Results Conference Proceedings, (Colorado Springs, Colorado: November, 1979), p. 183. The estimate is based on a cost of $30 per square foot of collectors, and the cost of air conditioning was added to this estimate to insure comparability. The solar house was

1,200 square feet as compared with 1,700 square feet for the conventional systems, but it was located in a cooler climate (Wisconsin) and no further cost adjustments were made to compensate for this space differential.

- A 500 ton per day flat glass furnace (float process) was used as the basis for the cost of an end-use device in the premium industrial market. Glass-making is a major industrial process, and oil, gas and electricity are all used to provide energy to this industrial sector. The cost of such a furnace ranges from \$4.7 million (electric-fired) to \$5.9 million (oil-fired) according to: Booz, Allen & Hamilton, Potential Markets for High-Btu Gas From Coal, (Bethesda, Maryland: April, 1980), p. C-25.
- The cost of a 200 MPPH boiler ranges from \$3.7 million (gas-fired) to \$17.9 million (coal-fired) as set out by: ICF Incorporated, submitted to the Congressional Budget Office, Economic Considerations in Industrial Boiler Fuel Choice, (Washington D.C.: June, 1978), p. II-59. Costs include all applicable pollution control equipment to meet SO_2 and TSP emission limitations (limestone scrubber), and field erection is assumed. The fluidized-bed boiler is assumed to cost 20 percent less than the conventional boiler based on EPA Report 600/7-79-178e, Technology Assessment Report for Industrial Boiler Applications: Fluidized Bed Combustion, Technical Appendix, as compared with the ICF study cited above.

F. Efficiency Estimates - Sources and Assumptions

The sources of the efficiency data referred to in step 2 of the methodology are cited below, as are any adjustments which were made to the referenced data. Efficiency estimates by energy source are shown in detail at Table 4, both "to the point of consumption" and "at the point of consumption." Both primary efficiency (heating value of the primary product divided by the heating value of the feed) and ancillary efficiency (energy equivalent used to operate the system) are considered.

1. Extraction

- Natural gas and nuclear extraction efficiencies of 99.3% and 94.6%, respectively, were derived from the Council on Environmental Quality, Energy and the Environment: Electric Power, (Washington, D.C.: 1973), pp. 51,55.

- An extraction efficiency of 99.4% is assumed for coal, based on: Radian Corporation, A Western Regional Energy Development Study, (Austin, Texas: August, 1975), pp. 12,14. An oil shale extraction efficiency of 76.6% was also obtained from this document at pages 36 and 291.

2. Processing

- Natural gas processing (Alaska-North) is assumed to be 96.7% efficient, versus a 57.0% efficiency for nuclear energy. See: Council on Environmental Quality, Energy and The Environment: Electric Power, (Washington, D.C.: 1973), pp. 51,55.

- Coal processing efficiency ranges from 35% to 100%, and a 90% level is assumed herein (see section E-2 for process description level). Richard A. Schmidt, Coal in America, (McGraw Hill: 1979), p. 286.

- The refining of synthetic crude from shale oil would entail a processing efficiency of some 95.0%; Radian Corporation, A Western Regional Energy Development Study, (Austin, Texas: August, 1975) p. 346. This refining step would be necessary for high priority markets (residential and premium industrial), but not for industrial boilers or electric utilities which could burn upgraded shale oil directly.

3. Conversion

- The conversion efficiency of South Alaskan gas, 90.5 percent, includes consideration of the liquefaction (91.0%) and regasification (99.4%) phases. These estimates were obtained from Western Terminal LNG Associates.

- Coal gasification efficiencies of 65.1% and 72.7% for high and medium Btu gases, respectively, were obtained directly from the project sponsors of the WyCoal and MLGW projects. The 65.1% includes a credit for coal fines, and gasification of liquid by-products.

- The coal liquefaction conversion efficiencies of 77.0% (SRC II) and 45.0% (Fischer Tropsch) were derived from: Energy Research and Development Administration, Alternative Fuels Demonstration Program, Vol. 1, (Springfield, Virginia: NTIS, September, 1977), pp. IV-99, IV-103. (This SRC II conversion efficiency is listed under "processing" on Table 4 in order to segregate it from the electrical conversion efficiency.)

- Electric power plant conversion efficiencies range from 31.9% (nuclear) to 36.9% (combined cycle) according to: Electric Power Research Institute, Technical Assessment Guide, (Palo Alto, California: July, 1979), Section 8. Annual availabilities, or capacity utilization factors, were also obtained from this document, ranging from 70.9% for a coal-fired plant to 81.7% for a combined cycle unit. (All other large scale conversion projects -- coal gasification, coal liquefaction, oil shale -- were assumed to have a utilization factor of 91.0%.)

- The solar photovoltaic conversion efficiency of 20% was obtained from the Solar Energy Intelligence Report, April 17, 1978.

4. Transportation/Transmission

- Efficiency factors of 91.6% and 95.6% were applied to the transportation of North Alaskan and South Alaskan gas, respectively, based on discussions with Northwest Alaskan Pipeline Company and Western Terminal LNG Associates.

- A high-Btu gas transportation efficiency of 97.3% is assumed, based on a 500-mile, 30-inch gas pipeline cited by: Radian Corporation, A Western Regional Energy Development Study, (Austin, Texas: August, 1975), p. 658.

- Estimated transportation efficiencies of 97.5% for coal and 98.1% for oil were obtained from: Council on Environmental Quality, Energy and the Environment: Electric Power, (Washington, D.C.: 1973) pp. 40,46. The coal efficiency was adjusted to reflect a 500 mile trip as opposed to 300 miles used in the source document. No losses are assumed for nuclear energy (see p. 55) as a result of the extremely high energy concentration per pound of the fuel shipped, energy usage per Btu shipped is negligible.

- The line loss of a 500-mile 500-kv electric transmission line is approximately 9%, thus the efficiency factor is 91%. Transformer losses are not included in this estimate by: The Electric Power Research Institute, Overview and Strategy, (Palo Alto, California: July, 1979), p. II-54.

5. Distribution

- The distribution of gaseous fuels, regardless of source, is assumed to have an efficiency factor of 97.1%. See: Federal Energy Administration, Final Programatic E.I.S. of the Allocation of Petroleum Feedstocks to S.N.G. Plants, (Washington, D.C.: August, 1977), p. 2.5-13.

- The ratio of electrical energy produced to end-use sales, 91.6% for 1979 according to: The Department of Energy, Monthly Energy Review, (Washington, D.C.: U.S. Govt. Printing Office, July, 1980), pp. 60-61, was assumed to equal the transmission efficiency for local electrical distribution.

- No estimate was available for the distribution efficiency of oil products (gasoline consumption by trucks, evaporation and spillage losses, etc.). Thus, it was assumed that the distribution efficiency equals the transportation efficiency of 98.1%.

6. End-Use Equipment

- End-use equipment efficiencies for residential/ commercial spaceheating of 95.0% for gas, 84.4% for oil, and 199.8% for an electric heat pump were assumed. These factors are reflective of highly efficient units which are available now, or will be available in the early 1980's. The oil unit is a Blue Ray furnace, and the gas is a Lennox pulse-combustion furnace. The heat pump heating season efficiency is based on the "high efficiency conventional heat pump" cited in Resource Planning Associates, Market Penetration and Associated Benefits of Improved Gas Furnaces, (Washington, D.C.: July, 1980), p. 1.4.

- The efficiencies of the 500 ton per day glass furnaces representative of the premium industrial market are: gas - 70%, oil - 70%, electric - 95%. Oil and gas furnaces have greater losses "up the stack" than do electric furnaces. See: Booz, Allen & Hamilton, Potential Markets for High-Btu Gas From Coal, (Bethesda, Maryland: April, 1980), p. C-25.

- The efficiencies of large (200 MPPH) industrial boilers range from a low of 85.0 percent (fluidized-bed) to high of 89.0 percent (oil-fired) as presented by: ICF Incorporated, Economic Considerations in Industrial Boiler Fuel Choices, (Washington, D.C.: June, 1978), p. II.9, and E.P.A. Report 600/7-79-178e, Technology Assessment Report for Industrial Boiler Applications: Fluidized-Bed Combustion, Technical Appendix.

G. Summary of Results

Table 1 summarizes the results of this analysis for each of 36 alternative energy trajectories. With regard to the types of energy (gas, liquid, solar, solid, electric) which could be developed, the following conclusions can be drawn:

Gas and electricity for spaceheating. The average electricity trajectory excluding solar requires $89.3 billion (ranging from $76.6 billion for combined cycle cogeneration up to $101.4 billion for electricity from liquid synthetic fuel from coal), while the corresponding amount of energy from the average gas trajectory requires a capital investment of $65.6 billion, -- approximately 27% less capital. The gas advantage ranges from 11% to 37% when comparing the maximum gas to the minimum electric and vice versa.

Fuel oil for spaceheating. The average fuel oil trajectory requires $96.5 billion per end-use quad, making increases in fuel oil supply the most expensive of all categories examined, as the average gas trajectory is 32% less than this amount, and the average electrification trajectory is 7% less.

Analysis of the results shown in Table 1 indicate the development of energy sources for premium industrial applications via the gas trajectory requires on the order of half the initial capital necessary for additional supplies of electricity. Finally, the investment requirements for boiler fuel trajectories are far lower than are other trajectories compared in this analysis, unless coupled with electrification.

APPENDIX A

The total capital investment requirements shown in Table 1 result from summing the respective fuel cycle capital cost estimates shown in Tables A-1 (Residential Space Heating), Table A-2 (Premium Industrial Fuel Use), and Table A-3 (Large Boiler Fuel Use). The capital investment requirement for each step of each energy trajectory is expressed in billions of mid-1980 dollars, normalized on the basis of providing one added annual quad realized by the end-user.

Table A-1

DETAIL
INVESTMENT REQUIREMENTS FOR RESIDENTIAL SPACE HEATING TRAJECTORY

(1980 $ Billions per annual burner tip quad)

	Extraction	Processing	Conversion	Transportation/ Transmission	Distribution	End Use	Total
Natural Gas							
Alaska-North	$1.072	$ 3.726	-	$ 20.318	$ .564	$39.440	$65.120
Alaska-South	1.151	-	13.715	7.687	1.631	39.440	63.624
Coal Gasification							
High Btu	4.943	-	20.854	2.317	.564	39.440	68.118
Coal Liquefaction							
Electric Generation (SRC II)	5.937	-	51.987	.625	14.771	28.040	101.360
Liquids (Fischer Tropsch)	7.904	-	56.761	.486	.403	43.940	109.494
Coal Electrification							
Plant Near End-User	5.140	.870	30.630	.996	15.771	28.040	81.447
Plant Near Coal Source	5.506	.932	33.657	10.108	15.771	28.040	94.014
Combined Cycle	4.874	.825	28.259	.945	13.687	28.040	76.630
Shale Oil							
Electric Generation	33.021	-	21.537	.857	14.771	28.040	98.226
Liquids	27.051	11.109	-	.667	.623	43.940	83.390
Nuclear Electric	2.412	2.951	35.193	Neg.	15.704	28.040	84.300
Solar							
Thermal	-	-	-	-	-	256.932	256.932
Photovoltaic							
(Current)	-	-	1,400.000	-	-	28.040	1,428.040
(1986 DOE Goal)	-	-	111.340	-	-	28.040	139.380

Source: Capital cost estimates set out in Tables 2 and 3, with adjustments for efficiencies as detailed in Table 4.

Table A-2

DETAIL

CAPITAL INVESTMENT REQUIREMENTS FOR PREMIUM INDUSTRIAL USE TRAJECTORY

(1980 $ Billion per annual burner tip quad)

	Extraction	Processing	Conversion	Transportation/ Transmission	Distribution	End Use	Total
Natural Gas							
Alaska-North	$1.433	$4.980	-	$27.171	$.765	$9.202	$43.551
Alaska-South	1.562	-	$18.604	10.429	2.214	9.202	42.011
Coal Gasification							
High Btu	6.711	-	28.305	3.145	.765	9.202	48.128
Coal Liquefaction							
Electric Generation (SRC II)	12.486	-	97.610	1.315	15.235	7.362	134.008
Liquid (Fischer Tropsch)	9.531	-	68.441	.586	.486	9.293	88.337
Coal Electrification							
Plant Near End-User	10.811	1.830	52.703	2.095	16.266	7.362	91.067
Plant Near Coal Source	11.582	1.960	57.933	10.430	16.266	7.362	105.532
Combined Cycle	10.253	1.735	47.712	1.987	14.117	7.362	83.166
Shale Oil							
Electric Generation	69.465	-	33.567	1.804	15.235	7.362	127.433
Liquid	32.62[illegible]	13.398	-	.804	.751	9.293	56.870
Nuclear Electric	5.075	6.209	62.306	Neg.	16.197	7.362	97.149
Solar Photovoltaic							
(Current)	-	-	1,974.467	-	-	7.362	1,981.829
(1986 DOE Goal)	-	-	156.970	-	-	7.362	164.332

Source: Capital cost estimates set out in Tables 2 and 3, with adjustments for efficiencies as detailed in Table 4.

Table A-3

DETAIL
CAPITAL INVESTMENT REQUIREMENTS FOR BOILER FUEL USE TRAJECTORY

(1980 $ Billions per annual burner tip quad)

	Extraction	Processing	Conversion	Transportation/ Transmission	Distribution	End Use	Total
Natural Gas							
Alaska-North	$1.170	$4.067	-	$22.190	$.616	$3.212	$31.255
Alaska-South	1.257	-	$14.972	8.394	1.782	3.212	29.617
Coal Gasification							
Medium Btu	4.825	-	23.727	1.039	.606	3.212	33.409
Coal Liquefaction							
Liquid (SRC II)	7.497	-	22.464	.461	.382	4.827	35.631
Coal Direct							
Scrubbers	3.741	.633	-	.725	-	15.455	20.554
Fluidized Bed	3.874	.656	-	.751	-	12.364	17.645
Shale Oil							
Liquid	25.653	-	-	.633	.591	4.827	31.704

Source: Capital cost estimates set out in Tables 2 and 3, with adjustments for efficiencies as detailed in Table 4.

Mr. **Sharp**. I don't know whether you have heard previous questions from a number of our subcommittee members, but many have been asking what about the alternatives, aren't they cheaper, or aren't we better off as consumers or a nation to go for some other alternative?

Mr. **Lawrence**. And the answer is no, we are not better off with alternatives. This capital efficiency study showed that the Alaska gas pipeline would have an investment of $65 billion per quad of energy delivered, and that would compare with the coal and nuclear-generated electricity and coal liquefaction of between $89 and $109 billion per quad delivered.

But solar energy, the one referred to, is in the range of $257 billion per quad delivered, by far the least capital efficient.

So we think that this gas supply is going to be competitive in the most competitive of markets, namely, the industrial market which competes with resid. These numbers in the $4.35 to $5.10 range or $4.65 to $5.10 range indicate it would be competitive in 1980 dollars with resid. today.

But we see the price of resid. rising as refineries are upgraded, and resid. is refined on down to the bottom of the barrel for transportation fuel, so that these prices are going to be even more competitive in the industrial market.

But again, by no means limit the salability of this gas to the industrial market. Some of these new forms of energy, methane-fueled vehicles, we are talking about a value of $10–$11 in 1980 dollars easily as a competing form of energy. The same for gas cogeneration.

So we are very optimistic about the marketability of this gas.

Mr. **Sharp**. Mr. McGrath, do you have a comment?

Mr. **McGrath**. Our companies are large business enterprises, and they have been very successful over the years. I can't for a minute think that they would invest in a project which in their view they could walk away from with all these billions of dollars committed to it.

Certainly they don't view it as a boondoggle nor do we consider it as something that will not eventually be a very important source of energy supply for this country.

Certainly the initial costs are high. But you look at the average cost over the life of the project, and it could well be a figure into the 1990's that would be below what might well be the wellhead price of deep gas being found in the lower 48.

You look at the supply potential to Alaska, and we think that once the Prudhoe Bay project gets moving and the additional drilling and incentive for additional drilling for gas comes into play, that there could well be substantial additional reserves of gas made available to the lower 48 over and above that which is already there.

Now, as far as the producers' pricing their gas to a point where the project would be infeasible, I know a lot of things are said about the producers. But I have never heard them charged as being kamikaze pilots, that they are going to just shoot down this thing.

It just doesn't make sense economically or otherwise. So we don't think it is a boondoggle, no. We don't think it is a bogus argument.

Mr. **Sharp**. Let me ask this. Is it possible, though I don't know what the set of assumptions is about how the curve declines over time or how rapidly it declines, but everybody talks as if unless the tariff formula is changed, the normal financing package one would presume for this, or unless something abnormal is done, that there will be front-end loading and, therefore, the price will be at the highest level during the first couple of years?

And then it will get into much more competitive ranges, the longer you go. I believe that is a general presumption under which most people seem to operate.

Is there a high risk, in your judgment, that at least for 2 years or 5 years, you will have a situation where you simply will pay the demand charge?

Correct me if I am wrong on this, in the formula or tariff schedule, the demand charge in this particular instance includes the bulk of the cost of the whole transportation system, if not all of it.

In other words, all, which is really the basic ingredient in this thing, is going to be paid come hell or high water.

Mr. **McGrath**. I will have to confess that I am not that intimately familiar with the tariff provisions. Certainly the higher cost is in the first year.

The tariff is what we would call a cost-of-service tariff, which is a return of your cost, plus return on your investment, recovering your costs, return on your investment.

But during the early years of the pipeline, you will be rolling in those costs which, with the lower 48 costs, which are much less, and the average delivered cost to the consumer, we think will be competitive, and our companies think it will be competitive.

And that competitive posture is enhanced as time goes on as the project is amortized. So, yes, there is a heavy front-end problem there.

But the project sponsors believe it can be overcome by the rolling in of the costs, and that the market is there.

Mr. **Sharp**. Let me ask you this. Do you expect the pipeline companies of your associations to be reexamining or continuing to examine their position financially in this project?

If I am correct, they still will have the option, should we pass the waiver package, just as the producers and the banks that are going to help raise the additional financing, to simply say, no, we are not putting our money in.

Am I correct that they are not locked in by contract if the project sponsors come up with the additional capital?

Mr. **McGrath**. Let me put it this way. The approval of the waiver package, as I understand it by the Congress, is not a guarantee that the project can be financed, nor is it a guarantee that FERC will find that the overall project is feasible on the basis of the financing package that may ultimately be submitted by the private sector in the hearings FERC would hold, or whatever considerations it would give to the project.

If the finance, or financing package that results as a result of these waivers, for whatever reason, appears to be unduly burdensome on the pipelines, or the other, sponsors of the project, I would say, yes, they would have the opportunity to say: Well, we have given it our very best, but it just can't be done.

The problem we are faced with now, we can't even reach that point without the waiver.

Mr. **Sharp**. I understand that. I guess perhaps my experience in Congress, where we are not as hard-nosed sometimes as the private sector is, leads me to this question.

But there is no question there is conversation about, among members of Congress and outside parties, and this may be a minority view, but that, in fact, there is widespread skittishness about this whole project, and that nobody is willing to take responsibility for saying it is a turkey.

All right? I am not saying it is. I am just saying that what we get a sense of is a lot of reluctance and a lot of skepticism by even, well, let's put it this way.

The producers that testified. The banks that were here as the lead banks to raise the capital, and outsiders. My only concern is could you reach a point where one presumes both the banks and producers, which are going to have billions, take a hard-nose look.

I trust your pipelines who perhaps took a hard look the first time around are going to take a hard look again. Do you get what I am saying?

Mr. **McGrath**. Yes, I think they will.

Mr. **Sharp**. The administration just didn't want to say no, so they shipped it up here so we would say no. And people say, by golly, it is going to get shot down the minute it gets out in the marketplace. That may be a minority view, it may be a cynical view that doesn't understand what the economic realities of the project are.

But that is clearly discussed among some people, you understand.

Mr. **McGrath**. I don't want to say the companies would not be hardnosed. They are good sound businessmen. I reiterate what I said before. If at some point in time a financial package is presented or whatever and goes up, and appears to them to be, well, this is the straw that broke the camel's back, I think they would then make a decision as to whether to stick it out or try something else or to back out.

Mr. **Lawrence**. I think there is frequently a tendency, particularly those that are not participating in these long term, highly capital-intensive supplemental supply projects, to poo-poo them and question the financial wisdom of those that do get involved in them.

And there is considerable risk. The Great Plains coal gasification project has an 8-year history. But now it's going to be built. This is going to prove to be the most economic and efficient and environmentally the best way to use our Nation's vast coal resources.

You can cite a similar comparison with an LNG terminal on the west coast. Over some 7 years the project has escalated in cost. But when it is built, and it will be, it is still going to be a preferable alternative form of energy.

I think that fits this project also. This has an even higher degree of visibility because of the larger numbers.

Mr. **Sharp**. Let me recognize my colleague from Oregon, Mr. Weaver.

Mr. **Weaver**. Mr. Chairman, thank you very much.

I am curious to know if you support the deregulation of natural gas prices. Do you oppose deregulation of natural gas prices?

Mr. **Lawrence**. We do not oppose, and for some 10 years we have not opposed deregulation of new gas. We have been very supportive of the ultimate compromise in the Natural Gas Policy Act.

Historically, the members of the American Gas Association have been opposed to deregulating the price of existing flowing gas.

Mr. **Weaver**. Why is that?

Mr. **McGrath**. May I add my statement to that, Congressman? My association represents the interstate pipeline companies.

Mr. **Weaver**. I see.

Mr. **McGrath**. Our position has been that we do not favor reopening of title I of the NGPA that, strange as it may seem, it has developed new reserves, it has worked. There are flaws, however, serious flaws in it.

Because of that, we are undertaking a review or analysis of the various deregulation scenarios that have been presented, those that have been bandied about and those that have been actually proposed.

We are in the midst of making an analysis of all of these as to what the impact would be on the interstate pipelines and the customers they serve.

We, unfortunately, won't be completed with our review until sometime next month, toward the end of the month is our target date.

But right now, we perceive a very serious problem coming up on 1985 because of the impact of indefinite pricing clauses in pipeline and producer contracts, many of which go back many years.

Until we get a better handle on what that impact is, which we hope to have, as I say, when our study is completed, we would be in a better position to address the question you ask.

But right now, we do not favor deregulation other than as set forth in title I.

Mr. **Lawrence**. Perhaps I better clarify mine, too. I gave the historic position on the old gas/new gas which led to our support of the Natural Gas Policy Act, which is a compromise. Our current position is similar to that of INGAA's.

Mr. **Weaver**. But you do believe in the free market system, don't you?

Mr. **Lawrence**. Indeed.

Mr. **Weaver**. With just this little exception.

Mr. **Lawrence**. Indeed. I think the trick we have got is to get to the orderly transition of this deregulated field price in the whole natural gas system, and there are imperfections with the Natural Gas Policy Act. This we recognize. I am sure this will be brought out in greater detail in hearings coming up.

Mr. **Weaver**. You do believe a product should be sold at the price that can recover its cost plus a profit?

Mr. **Lawrence**. Indeed, yes.

Mr. **Weaver**. Then you don't believe in averaging, do you, in melding the price of energy? In other words, you believe a product like natural gas should be sold at its true price and not subsidized by cheaper gas?

Mr. **McGrath**. No, we favor the rolling in of the costs——

Mr. **Weaver**. That destroys the free market system.

Mr. **McGrath**. No, it's been historically——

Mr. **Weaver**. I understand, but it destroys the free market system because, therefore, we are not sending the signals to the marketplace as to how much it's costing, are we?

Mr. **McGrath**. If you had to cost individually——

Mr. **Weaver**. I am talking about the free market system.

Mr. **McGrath**. You wouldn't be able to afford it.

Mr. **Weaver**. That is what I am saying. If you can't afford something, you shouldn't make it, isn't that right?

Mr. **McGrath**. Wouldn't have gas service, wouldn't have electricity.

Mr. **Weaver**. No, wait a minute. People can get anything they are willing to pay for. What you are saying is they can't afford to pay for this gas in this pipeline, isn't that right?

Mr. **McGrath**. You can afford to pay anything that you have the money for.

Mr. **Weaver**. That's right. So if they want to buy it, they will buy it at its actual cost. But you are not sending a true signal to the marketplace.

You are going to spend, or the people are, spend billions of dollars building this pipeline, then they are not going to charge what the pipeline costs.

I don't think that is smart business. I was 20 years in business and built thousands of homes and office buildings; and if I had taken my older buildings that made me a nice product and subsidized my newer ones, I would have been broke in a couple of years.

Mr. **Lawrence**. Could I comment?

Mr. **Weaver**. You bet.

Mr. **Lawrence**. If you encourage the owners of those homes and buildings to heat them with electricity and home heating oil, you were certainly sending an adverse signal to those consumers as compared with the price of natural gas from this project or virtually any other project.

We don't see why natural gas should be singled out for some sort of an incremental pricing provision, and all of the other forms of energy are treated in a fungible manner.

Mr. **Weaver**. I absolutely agree with you, you are absolutely right. By the way, almost all my homes where I used natural gas, I love it as a fuel—at any rate, I have fought a lonely battle on electricity as well.

As a matter of fact, the first bill I introduced in Congress was to do the same thing with gasoline at the pump, you know, to get this marginal price of energy.

If we charged the marginal price of energy in this country, it probably would be the single most-effective thing we could do to solve our energy problem because it would send a true signal to the marketplace on what we are paying for foreign oil and new natural gas, and what we are paying for electricity.

But we don't. We take the old forms, subsidize the new forms. Therefore, the marketplace isn't getting the right signal and we are going literally bankrupt in the energy field in this country.

I just continue to carry on this lonely fight. The two systems are the easiest where you get marginal pricing are electricity and natural gas, because they are metered and you could just simply crank the marginal pricing into the computer just like that, price it that way.

Interestingly enough, finally, in the Northwest, I represent a congressional district in Oregon, finally, the utilities are starting to go to marginal pricing. They just announced several private utilities and a couple publics.

I have hope. But if I could just, that one thing, if we could do that one thing, and that is price our new energy on the margin and send the true signal to the marketplace so the marketplace could then develop its energy forms in competition, that would be the most effective thing we could do.

Mr. SHARP. The gentleman's always been a vigorous advocate of that proposition, I know. I would like to ask the gentlemen, though, if they can answer a followup to Mr. Weaver's question.

We have a problem in this particular project, I don't know how uniform it would be in other projects, but we are at least told the cost of this is a declining curve.

The way it's structured, higher cost will come at the front end, and decline over time. Therefore, the question is, what is the marginal price of the project? We have already had witnesses who have suggested that what will probably have to happen in order to market the gas is either the tariff formulas will have to be changed so it's spread out over a longer period of time, or the people that are going to provide the debt capital will have to be willing to take more of it in the outyears and less in the early years, is that correct?

I mean, we still have the problem of what would be the appropriate marginal price if we were to follow the gentleman's line of thinking. Is there any dispute about this, that the high cost is on the first few years, not the 10th year out or 5th or 6th year out?

The high cost is the first couple of years.

Mr. McGRATH. I believe that's right. Of course, I don't know what the marginal cost would be. It may well be, as you say, that if, in fact, there may have to be adjustments, the FERC is going to be examining the whole tariff question, I understand, following approval of the waiver package, if the waiver package is not approved, they won't hold hearings.

I am sure these matters will be addressed very carefully by the Commission because they have been raised. There may well have to be some give-and-take. I am sure there will be.

This is a very complicated and costly project. But I personally don't know the answer to your question.

Mr. WEAVER. Has the committee established what causes this large price at first, what causes the decline thereafter? Has that been established for the record?

Mr. SHARP. It is the way they depreciate the rate.

Mr. WEAVER. It's all depreciated at the front end? Would counsel explain it?

Mr. SHARP. Do either of you gentlemen have a response to why that is, high cost at the front end? We understand it is basically a depreciation question. What causes the front-end loading of the cost on the curves here? Why is it so high at the beginning?

I think our initial understanding of that is, it is the way in which the pipeline is depreciated.

Mr. LAWRENCE. It is depreciated on a straight-line basis. That is the largest undepreciated amount in the early years, the first years.

Mr. WEAVER. Thank you. You are talking to somebody, you know, who spent, you know, hundreds of thousands of dollars with tax accountants on depreciation, and I still don't understand it, what you are doing.

Mr. MCGRATH. I think it is the way the project has been structured, Congressman. In the early days of the proceedings and in the final decision of FERC and decision of the President, that the larger share of the cost would be recovered in the early years of the project.

Mr. WEAVER. That is what you are trying to do is get the money paid back to the banks as fast as possible, isn't that really it?

The banks say we don't want that much money out for that long a time. You want to get that money as fast as possible back into the bank.

Mr. MCGRATH. That is basically it, I believe.

Mr. WEAVER. Therefore, you charge a high price now and really sock them. Then, as the banks are paid back, you can lower the rate, is that it?

Mr. MCGRATH. I believe basically that is it. It goes back as I say, to the earlier approvals of the project, the way it would be financed.

Mr. LAWRENCE. I suspect we are not the best ones to develop the answers to your question on this. I think it is the project sponsors that are much more intimately familiar with this tariff, Congressman.

Mr. WEAVER. I should have asked them that and didn't get to it.

Mr. SHARP. One thing that does concern me a bit, though, is that your pipelines, your membership, are going to become locked into this at some point, assuming everything goes forward.

Then one question arises: whether or not they would find, either because of their investment or because of the tariff schedule, which is the cost of service passed through regardless, that for either one of those two reasons, they are going to do contrary to what I said earlier. They are going to buy this gas but, in fact, will be buying one of the highest cost increments when they might well have been passing up lower cost increments elsewhere.

Of course, in your original testimony, you were arguing that, in fact, you are going to meet all these increments and it is not a situation of trading off one for the other.

Mr. MCGRATH. I think down the road, that is what we are looking at, Congressman.

Mr. LAWRENCE. I think particularly with the electric option, whether coal or nuclear generated, we have the same capital-intensive projects that are treated in the same public utility manner.

And our studies indicate that they are less capital efficient.

Mr. SHARP. Of course, we will have FERC before us on Friday where we may ask them about tariff schedules at that time. Do any other members of the committee have a question?

Mr. SEIBERLING. I just have one question, Mr. Chairman.

Mr. SHARP. The gentleman from Ohio.

Mr. SEIBERLING. You put great stress on the importance of this to our national security, and, of course, there is an aspect that relates to our national security.

In the case of oil, the Congress finally decided that we would build a strategic petroleum reserve, and the taxpayers are paying for that.

Why shouldn't the part of this that represents the national security interest be paid for by all the taxpayers, instead of just the particular consumers of gas who are being asked to finance something that you say is needed for our national security, not just for their security?

Mr. LAWRENCE. I think there are any number of gas supply options in supplemental and conventional natural gas supplies that would enhance our national security. This project, no more than any of them, are asked to be given a particular tax subsidy.

I guess the goals of the strategic petroleum reserve are very special ones. I think there are, in developing the various attributes of gas energy from the standpoint of fully utilizing our million-mile pipeline system, fully utilizing this gas from Alaska, gas that could be made available from Canada and Mexico into this system, it would be much more secure than foreign sources of oil.

Mr. SEIBERLING. I am not arguing that. I am saying, who should pay for the national security aspect of this thing? The consumers or the taxpayers?

Mr. McGRATH. Right now, this is a private, hoped to be a privately financed project to serve consumers of natural gas. It isn't in the same category as a strategic petroleum reserve which, as I understand it, would be to keep a storage of oil for use by the Navy, the Army, whatever, in terms of real emergency.

Mr. SEIBERLING. Civilian economy, too.

Mr. McGRATH. In emergency. We are not facing an emergency as such in terms of this project. We are saying that if this project goes forward, it will enhance the security of our domestic supply source, even though you are running through a foreign country, Canada, nevertheless, we think the North American concept of energy sufficiency is greatly enhanced by this kind of project.

The customers that are being served or would be served with natural gas are paying for it, just as they are today, from gas that will be produced from the overthrust belt in Montana and elsewhere.

Mr. SEIBERLING. They are paying for this as a hedge against future shortages is what you are saying.

Mr. McGRATH. Yes; we are looking down this as a long-term supply source.

Mr. SEIBERLING. Well, I guess there is something to that. I had one other question, but now I have forgotten what it was, Mr. Chairman, so that's that.

Mr. SHARP. We are all in the same boat. They keep arising in our minds.

Yes, the gentleman from California.

Mr. DANNEMEYER. I would ask this question of Mr. Lawrence.

Has the AGA prepared a response to Professor Loury's assertions in his study? He makes certain claims with respect to immediate deregulation. Has your association prepared a critique of what Professor Loury has said or a response to what he's said?

Mr. **Lawrence**. Indeed, your honor. I don't know that we have made it a public record in proceedings such as this, but we have sent Professor Loury a 14-page single-spaced letter to that effect.

Mr. **Dannemeyer**. Would you make available a copy of that letter? I am not sure it belongs in this record. but I would like a copy of that.

Mr. **Lawrence**. If you will exempt us from the liable laws, we will.

Mr. **Dannemeyer**. I don't have that ability. I may have that inclination, but not that ability.

Mr. **Lawrence**. Yes, sir, I think the answer is, we will prepare a response.

Mr. **Dannemeyer**. Thank you.

Mr. **Sharp**. Gentlemen, we appreciate your testimony today. It is possible some of our subcommittee members will have further questions we might ask you to respond to in writing.

[The following letter was received:]

AGA

George H [illegible]

March 23, 1982

Honorable Philip Sharp
Chairman
Fossil and Synthetic Fuels
  Subcommittee
Energy and Commerce Committee
Room H2-316 Annex II
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Sharp:

On October 27, 1981, I testified on behalf of the American Gas Association, before a joint hearing by the House Energy and Commerce Subcommittee on Fossil and Synthetic Fuels and the House Interior and Insular Affairs Subcommittee on Energy and the Environment on proposed waivers for the Alaska Natural Gas Transportation System. At that time I requested an opportunity to respond in writing to certain questions that you and Chairman Mo Udall had asked in your letter of October 22. Though, at the hearing, I addressed most of your written questions, I do wish to expand my remarks to further address the specific concerns outlined in your letter. I hope that you will include these comments in the record of the October 27 hearing.

Following is my statement:

> The proposed package of waivers for the Alaska Natural Gas Transportation System improves the prospects of the Alaskan project acquiring private sector financing; but does not alter the basic nature of the financing from the private sector to the public sector.
>
> The waiver package contains several important provisions which improve the financibility of the Alaskan Natural Gas Transportation System (ANGTS). Among other provisions, the waivers make it possible for the Alaskan gas producers to invest in the project. This increased private financial backing provides additional assurance to the financial community as to the viability of the project.

> A second waiver provision established a prebilling procedure to allow the recovery of limited costs for each of the three major segments of the pipeline upon completion and testing of that segment. As you know, Mr. Chairman, the three major segments are the gas conditioning plant in Alaska, the pipeline in Alaska and the pipeline in Canada. This means, for example, that the U.S. sponsors of the pipeline would be allowed to recover some expenses for taxes, operations, interest and loans on an individual segment(s) when it has been completed.
>
> The ultimate risk to consumers is small. Prebilling to consumers only starts *if* any of the three major segments are finished before the whole project and only *if* the target date for completion, which is set by the Federal Energy Regulatory Commission has passed. On the other hand the private sector risk is substantial and nearly open-ended. The sponsors will have to put at least $7 billion up front. This $7 billion can not be recovered under the waiver package until the entire 4,800-mile system is finished and gas starts to flow.

Mr. Chairman, I thank you for holding open the record of this important hearing.

Best regards,

G H Lawrence

George H. Lawrence

Mr. SHARP. Our next witness today, Mr. Edwin Rothschild, director of the Energy Action Education Foundation.

STATEMENT OF EDWIN ROTHSCHILD, DIRECTOR, ENERGY ACTION EDUCATIONAL FOUNDATION

Mr. ROTHSCHILD. Good afternoon, Mr. Chairman. I would like to have my written comments submitted for the record, and I will try to summarize in a few minutes.

Mr. SHARP. Without objection.

Mr. ROTHSCHILD. There is no question that the reserve of hydrocarbons, natural gas in Alaska, should be used and produced for the benefit of the country.

The question is not should we get it, but how do we do it, in what way, and how does it benefit the Nation.

In our opinion, the waiver package is not in the public interest and clearly demonstrates that the free market is not willing to put up the risk capital because the project is viewed as too risky to undertake.

If that is the case, then why should ratepayers assume any of the financial risk, however slight or however great, depending on what happens, when they receive none of the financial benefits?

This waiver package would transfer a significant portion of the risk from the pipeline sponsors and lending institutions to consumers. Moreover, the waiver package would deny consumers the basic protections inherent in the Natural Gas Act because it would waive sections 4, 5, 7, and 16 of that act for certain provisions.

These sections are the heart of the law which protects consumers from the monopoly power of pipelines. In the name of what the sponsors call regulatory certainty, the waivers would eliminate the sections of the Natural Gas Act which would insure that all rates are just and reasonable, and that the pipeline be constructed under an approved certificate of public convenience and necessity, and the pipeline cannot abandon its facilities.

Under this waiver proposal, the pipeline sponsors would deny consumers due process, especially if the requirement for an evidentiary on the record hearing is only permitted at the discretion of the Federal Energy Regulatory Commission.

The recent history of the Federal Energy Regulatory Commission has been, in cases where it has discretion, to not allow such evidentiary hearings.

And for such a project of such magnitude and complexity, not to have an evidentiary hearing where witnesses can be cross-examined, where facts can be challenged and testimony challenged, seems to me to prevent those people who are going to be affected—namely, the users of this gas—from having any involvement as to how their money is going to be spent and if it is being spent in an efficient manner.

In other cases regarding construction of natural gas pipelines, consumers and other interested parties have an opportunity to present evidence, cross-examine witnesses, and challenge the facts presented by the pipeline company.

If these waivers are adopted, consumers will be effectively denied their due process rights because the waivers would not require such an evidentiary hearing.

Proposed waivers would make consumers pay for the pipeline even if the pipeline is uncompleted. By making consumers pay for segments before they are complete and operational shifts the financial risks from the sponsors and banks to the ratepayers.

The risks of the sponsors will be substantially reduced. Instead, consumers in California, Ohio, Michigan, Wisconsin, and other States will bear the risk.

They will be putting up their capital, which is much more limited than the capital available to the aforementioned, for a project from which they will receive no equity, no interest, but only a promise in the future of some gas at an extraordinarily high price.

I do not know what you call that arrangement, but it certainly is not free enterprise and it is not private financing.

The pipeline sponsors are also trying to shift the financial burden of constructing the plant that prepares the gas for the pipeline from the gas producers to the pipeline's ratepayers. Consumers are going to be forced to pay for something producers should rightfully be paying for. If they are, then consumers should at least receive some compensation in return.

Another serious problem is one involving the antitrust waiver; namely, allowing producers to have an equity interest in the pipeline. It is a serious problem, one that has concerned the Justice Department for many years, particularly in reference to oil pipelines and oil ports.

To allow the largest and only gas transportation system in Alaska to be acquired in whole or part by the largest producers is dangerous, especially in light of the administration's likely effort to accelerate decontrol.

Thus, according to an August 9, 1977, letter to the White House, the Justice Department's "recommendation was based on the premise that such ownership or participation was under a regime of deregulated or relaxed wellhead price regulation could lead to the evasion of effective pipeline regulation and create the opportunity for the earnings of monopoly profits through anticompetitive activity."

This waiver does not provide the public with sufficient assurance that anticompetitive activity will not occur. In fact, the waiver permits the Federal Energy Regulatory Commission, whose Chairman has already stated he is in favor of moving the project forward, to reject the Justice Department's recommendations concerning antitrust problems raised by producer ownership in the pipeline.

It would seem to be more logical that, if nothing else, the Justice Department be required to approve producer participation, rather than just act as a consultant to the FERC.

Such antitrust reviews are within the domain of the Justice Department's Antitrust Division, not within the FERC. To provide the FERC with decisionmaking authority over antitrust matters is tantamount to giving the Department of Energy authority over defense matters.

At this point, I think it is useful, Mr. Chairman, to review in a brief period of time the history of this pipeline because the Northwest Energy Co. was granted their project when at a very late date, a memorandum from Mr. Mark J. Millard of Loeb Rhoades was sent to Mr. McMillian, stating quite explicitly that the pipeline could be financed privately.

I will quote from Mr. Millard's August 10 memorandum of 1977.

> There is sufficient credit support capacity among the primary beneficiaries of gas pipelines, excluding the consumer, to assure completion of the pipeline. This is the single, most important risk to be addressed in arranging a private financing.

Of course, the other projects, Arctic and El Paso, said they needed an all-events tariff, namely to begin charging the consumers before the pipeline was complete on the risk it wouldn't be complete.

But this precise decision—to say we didn't need to use an all-events tariff and use more traditional tariffs—was one of the key things that swayed the decision in the favor of this pipeline project.

It was that insistence on private financing. Moreover, Mr. McMillian told House members of this committee that the "President's decision requires the Alcan project to be privately financed in its entirety. United States and Canadian Governments will not be called upon for financial guarantees, nor will the consumers have to bear the hypothetical burden of the noncompletion of the project."

He told that to the Senate as well. Clearly, Mr. McMillian has changed his position. Clearly he wants to do what he wants to prevent consumers from doing under the waiver provision.

He wants to prevent consumers from reopening the tariff or rate proceedings once they have been adopted by the FERC. But no, not here in proposing this waiver package, Northwest wants to reopen all of the promises and commitments that were made, basically the verbal contract that was made with Congress and the American people when this pipeline was proposed.

So what is good for one, it seems to me, should be good for all. If Congress is going to allow Mr. McMillian to reopen the commitments that were made, that Northwest energy made in terms of financing this pipeline, then consumers should have the right at the FERC to come back, if the costs have gone down, if operation and maintenance costs have gone down, if new technology has been found to reduce the costs, to reopen those rate proceedings and get lower prices.

What is most galling, Mr. Chairman, is that even if Congress passes these waivers, the banks and financial community are uncertain about the pipeline's financial health.

No one who has testified was willing to say they would not be back seeking more consumer and Federal support. This uncertainty is not surprising.

I suspect that now that Mr. McMillian is close to getting his upper torso in the door, he is trying to get all the way through and seek Federal loan guarantees.

In fact, I would like to make this a part of the record, Mr. Chairman, a recent story in the Christian Science Monitor.

Mr. **Sharp**. Without objection, we will put that in the record following your prepared statement.

Mr. ROTHSCHILD. Thank you. That states that pipeline officials have already had conversations with administration staffers and have received optimistic signs that the administration might consider such Federal guarantees.

I can even play out a scenario. Congress passes the waiver package. President Reagan proposes to accelerate decontrol of natural gas. Bankers are now convinced that unless the Government helps the pipeline that decontrol will make the gas unmarketable.

This pipeline, even unbuilt, has failed to live up to its glowing expectations. These waivers should be rejected.

We should start the process of finding the most efficient and economic method of producing Prudhoe Bay natural gas again. Perhaps the proposal to convert it to methanol and ship it down the oil pipeline would make more sense.

The time has come to stop trying to rescue John McMillian's $40 billion boondoggle and to start to find a better alternative.

That completes my summary, Mr. Chairman.

[Testimony resumes on p. 885.]

[Mr. Rothschild's prepared statement and attachment follow:]

ENERGY ACTION

STATEMENT OF
EDWIN ROTHSCHILD
Director
Energy Action Educational Foundation

BEFORE THE COMMITTEE ON ENERGY AND
NATURAL RESOURCES OF THE UNITED STATES SENATE
October 26, 1981

AND

BEFORE THE FOSSIL AND SYNTHETIC
FUEL SUBCOMMITTEE OF THE HOUSE ENERGY AND
COMMERCE COMMITTEE AND THE ENERGY AND
ENVIRONMENT SUBCOMMITTEE OF THE HOUSE INTERIOR
COMMITTEE OF THE UNITED STATES HOUSE OF REPRESENTATIVES
October 27, 1981

Mr. Chairman and members of the Committee. I appreciate very much the opportunity to testify today on the proposed waivers of law regarding the construction of the Alaska Natural Gas Transportation System (ANGTS).

The proposed waivers submitted to the Congress by the President on October 15, 1981 are designed to make the ANGTS a project that transfers a substantial portion of the risk from sponsors and lenders to consumers. In addition, the waivers would permit equity ownership in the pipeline by the gas producers of the Prudhoe Bay field, a situation the Justice Department in 1977 said should not be permitted. These waivers would curtail the rights of consumers to review financial and managerial decisions and determinations through an evidentiary hearing by leaving such a hearing up to the discretion of the Federal Energy Regulatory Commission. Finall these waivers would provide that the Commission could not change any final rules or orders under Sections 4, 5, 7, and 16 of the Natural Gas Act, despite changed financial, physical or technical circumstances. Consumers are being asked to shoulder the extraordinary financ risks, while the sponsors and their banks seek insulation from such risks as well as the substantial rewards. Based on these conclusions, we do not believe Congress should adopt the waiver proposal.

SOME HISTORICAL NOTES

Before examining in detail our objections to the proposed waivers of law, I think it would be useful to review how John McMillian's Northwest Energy Company's project, Alcan was selected as well as the representations made by Mr. McMillian and his company which were instrumental in persuading the Government to choose his proposal over the others. Three projects--Alcan, El Paso and Arctic--were before the Federal Power Commission in 1976 and 1977 proposing to construct a transportation system to deliver Alaskan gas to the lower 48 states. While there were criticisms of all the systems from varying points of view, one of the key elements for obtaining government approval was whether or not the transportation system could be privately financed.

In this regard all three of the original competing projects -- Alcan, El Paso and Arctic -- insisted that they needed an "all-events tariff." This tariff provided for consumer payment of the pipeline even if the pipeline never delivered a single cubic foot of natural gas. There was great opposition to this type of tariff both in Congress and among many of the potential consumers of this gas. Recognizing that an alternative to the "all-events tariff" would have a significant influence on the decision-making process, Alcan's chief financial advisor Mr. Mark J. Millard, a vice president of Loeb Rhoades, sent a memorandum to McMillian stating,

> There is sufficient credit support capacity among the primary beneficiaries of gas pipelines, excluding the consumer, to assure completion of the pipeline. This is the single, most important risk to be addressed in arranging a private financing. Such beneficiaries are the gas transmission companies, gas producers, and the State of Alaska. (Empasis mine)

and

> The obligations of consumers to pay certified costs of the project can be limited to a minimum bill tariff commencing when initial gas deliveries are made. I do not believe legislation obligating gas consumers to an "all-events" tariff, which provides for payment of cost prior to the completion of construction, is a necessary condition of successful private financing if sufficient overrun funds are provided.[1]

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[1] Memorandum to John G. McMillian from Mark J. Millard, August 10, 1977, pp. 2-3.

With El Paso and Arctic still insisting that such an "all-events tariff" was necessary and with Northwest Energy pledging its support for President Carter's National Energy Plan, the White House, after reaching agreement with the Canadian Government, submitted its Decision and Report on the Alaskan Natural Gas Transportation System to Congress.[2] On the same day Mr. Mcmillian told House members,

> The President's decision requires the Alcan project to be privately financed in its entirety. The United States and Canadian governments will not be called upon for financial guarantees. Nor will the consumer have to bear the hypothetical burden of the non-completion of the project. Instead, other primary beneficiaries of the project will be called upon to provide the necessary financial backing. We believe that Alcan can obtain the necessary project financing from Canadian and United States sources.[3] (Emphasis added)

These assurances were repeated by Mr. McMillian to the Senate Energy and Natural Resources Committee on October 11.[4] Mr. McMillian and his financial advisors also stated that they would not need the financial support of the Prudhoe Bay producers in the effort to obtain private financing.

But as we all know Mr. McMillian was wrong, so wrong that he and his cohorts are running around the halls of Congress trying to obtain support for the very things he said he would not need and the very things the sponsors of the other projects said were necessary. Clearly, Mr. McMillian changed his position on the financing of this pipeline in August 1977 to obtain the Government's approval, while knowing full well that private financing under those conditions would be improbable, if not impossible. But he must also have recognized that once he had received the Administration's approval, he would have his foot in the door. Now, four years later, Mr. McMillian is trying to force his way further in by using all of the work that has been done, the expectations that have been raised and the money already spent as justification for these extraordinary and unprecedented waivers.

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[2] Decision and Report to Congress on the Alaska Natural Gas Transportation System, Executive Office of the President, September 22, 1977.

[3] Joint hearings before the Subcommittee on Energy and Power of the Committee on Interstate and Foreign Commerce and the Subcommittee on Indian Affairs and Public Lands of the Committee on Interior and Insular Affairs, House of Representatives, 95th Cong., 1st Sess., on The President's Decision on an Alaskan Natural Gas Transportation System, p. 87.

ALLOWING PRODUCERS EQUITY PARTICIPATION

The first of the proposed waivers would waive Section 1, Paragraph 3, and Section 5, Conditions IV-4 and V-1, of the President's Decision to allow the gas producers --Exxon, BP/Sohio and Arco -- an ownership interest in the pipeline. The proviso to this waiver is that the Federal Energy Regulatory Commission approve any participation agreement only after considering "advice from the Attorney General" and making a finding that the agreement will not violate the antitrust laws, nor restrict access for nonowner shippers and capacity expansion.

While the current arrangement between the pipeline-owners and the producers limits the producers to 30 percent of the equity, there is nothing preventing the pipelines or Mr. McMillian from handing over 49.9% of the pipeline's ownership to the producers, if the financial backers insist that this is a necessary condition for the credit worthiness of the project. Once the Congress allows producers to become owners of the pipelines, then it is not unreasonable to assume that their ownership interest could expand.

This is a serious problem. It is one that has concerned the Justice Department for many years, particularly in reference to oil pipelines and oil ports. To allow the largest and only gas transportation system from Alaska to be acquired in whole or in part by the producers of the largest U.S. gas field is dangerous, especially in view of the Administration's likely effort to accelerate decontrol of natural gas prices. It was just such an eventuality that prompted the Justice Department's opposition. Thus, according to an August 9, 1977 letter to the White House, the Justice Department's

> recommendation concerning gas producer ownership and participation was based on the premise that such ownership or participation under a regime of deregulated or relaxed wellhead price regulation could lead to the evasion of effective pipeline regulation and create the opportunity for the earning of monopoly profits through anticompetitive activity.[5]

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[4] Hearings before the Committee on Energy and Natural Resources, United States Senate, 95th. Cong., 1st Sess. on S.J. Res. 82, Joint Resolution to Approve the Presidential Decision on an Alaska Natural Gas Transportation System, p. 102.

[5] Decision, Exhibit following p. 212.

This waiver does not provide the public with sufficient assurance that anticompetitive activity will not occur. In fact, the waiver permits the Federal Energy Regulatory Commission, whose chairman has already stated he is in favor of moving the project forward, to reject the Justice Department's recommendations concerning antitrust problems raised by producer ownership in the pipeline. It would seem to be more logical that, if nothing else, the Justice Department be required to approve producer participation, rather than just act as a consultant to the FERC. Such antitrust reviews are within the domain of the Justice Department's Antitrust Division, not within the FERC. To provide the FERC with decision making authority over antitrust matters is tantamount to giving the Department of Energy authority over Defense matters.

INCLUDING THE CONDITIONING PLANT AS PART OF THE TRANSPORTATION SYSTEM

It is the usual practice in the natural gas industry that a pipeline company is responsible for constructing a pipeline up to a producer's gas conditioning plant. The gas emanating from that plant receives a price from the pipeline company that contains in it a provision for the cost of the conditioning plant. Of course, the producer retains the ownership of the valuable products produced from that plant -- propane, ethane and butane, to name the most well known. In today's marketplace, these products command high prices for use as petrochemical feedstocks. Under regulation, the sale by producers of natural gas liquids often resulted in a "net liquid credit" against the costs incurred in the production of the gas. In other words, the wellhead price under regulation also reflected the revenue produced by the sale of these liquids. This benefited consumers by reducing the price of natural gas they received but at the same time benefited producers by giving them another secure source of revenue.

If consumers are going to be forced to pay for something producers should rightfully be paying for, then consumers should at least receive some compensation in return. After all, the price allowed at the wellhead for Prudhoe Bay gas incorporates the cost of conditioning the gas. In addition, the cost of Prudhoe Bay gas is, in reality, next to nothing, since it was found and developed in connection with crude oil. Clearly, the conditioning plant should not be part of the rate base of the pipeline project. It should be a cost borne by the producer. If, however, the Congress decides to allow such a dramatic shift in regulatory policy, then consumers must receive credit for the value of the gas liquids which the plant produces. In other words, the value of the plant liquids should be used to offset the rates charged to consumers for the conditioning plant.

BILLING COMMENCEMENT DATE

The waiver of Section 5, Condition IV-3 which would prevent consumers from being charged until the pipeline is completed and in operation represents nothing less than a variation of the "all-events tariff." Yet, Secretary Edwards interprets this waiver to mean that "the FERC could allow billing for transportation through the ANGTS prior to the time the whole system is completed and gas begins to flow, under certain specified, limited circumstances." Mr. Edwards' comment notwithstanding, it is obvious that what is being proposed is comparable to what is called under electric utility regulation, "construction work in progress" (CWIP). As Edward Petrini of the National Consumer Law Center has observed,

> ...the issue is the timing of ratepayer payment of capital costs on such plant--i.e., whether such payments should be made by ratepayers when the plant is actually serving customers or whether such payments should begin before that time, while the plant is still under construction.[6]

Mr. Petrini points out that CWIP "violates what accountants call the 'matching principle' (the principle which attempts to associate financing costs with earnings)" and also "discriminates against present ratepayers in favor of future ratepayers."

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[6] Letter to Rep. Philip R. Sharp, July 24, 1981.

Finally, argues Petrini, "Utilities have stronger incentives to complete capital construction projects quickly if they do not begin recovering the costs on their investment until the project is completed. By permitting early recovery of the costs of the project, this incentive is diluted. On a project as ambitious as ANGTS, such a change in the typical risk allocation could result in high escalations indeed."

By making consumers pay for segments of the pipeline before the pipeline is complete and operational shifts the financial risks from the sponsors and banks to the ratepayers. Such a tariff, if allowed, would effectively undermine what Secretary Edwards claims should occur -- "the private financing of ANGTS." Of course, it will be easier for the pipeline sponsors, the major oil companies and the banks to finance this project. Their exposure, their risks will be substantially reduced. Instead, consumers in California, Ohio, Michigan, Wisconsin, etc. will bear the risk. They will be putting up their capital, which is much more limited than the capital available to the aforementioned, for a project in which they will receive no equity, no interest, but only a promise in the future of some gas at an extraordinarily high price. I do not know what you call that arrangement, but it certainly is not free enterprise and it is not private financing.

A recent report, "Financing of the Alaskan Natural Gas Transportation System" by Hilary Sills, director of Energy and Environment Policy of the Government Research Corporation noted that

> The Administration views advance billing as imposing two obligations on consumers. First, consumers are forced to make a loan during construction. Second, there is a contingent liability in which the group who bears the risk of delay, in this case consumers, cannot influence the extent of the delay. While the waiver is not unique, it is unusual and confirms the fact that the economics of the project are so close that the sponsors have to resort to these unusual measures in order to obtain financing.

Again, the comparison to CWIP is noteworthy. It is precisely at times when electric utilities claim they are in financial straits "usually brought about by a combination of ongoing, large construction programs which have increased dramatically in cost, soaring fuel costs, and lagging demand,"[7] that they must resort to such risk-shifting proposals.

EVIDENTIARY HEARING

The proposed waivers would not require the use of a formal evidentiary hearing in proceedings related to applications for certificates of public convenience and necessity authorizing the construction or operation of any segment of the approved transportation system and would allow the FERC discretion in determining when such evidentiary proceedings will be held. It is clear that whoever drafted this waiver is quite familiar with the recent history of the FERC, because he knows that wherever the FERC has had discretion, it has, in most cases, eliminated the use of evidentiary proceedings. Without evidentiary hearings consumers will effectively be prevented from cross-examining testimony, submissions, economic analyses and witnesses. Fact finding will be restricted. By waiving this requirement, the sponsors are seeking not swift regulatory approval, but blind and unaccountable regulatory approval. There is no guarantee that the bureaucracy will protect the rights of individual citizens as they try to understand and assess the judgments and decisions of the pipeline sponsors. Without an evidentiary hearing on this most expensive, complex and unprecented project, there is a great probability, if not a certainty, that cost and technical data will be applied so as to favor the pipeline sponsors and to harm the ratepayer. What banker, what businessman would be willing to commit his scarce capital resources to a risky venture without access to full documentation and the right to an independent and thorough review of the cost accounting and technical designs? There is no such prudent businessman. So then, why should the ratepayer, who is putting up capital, be denied the same opportunity?

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[7] See Petrini letter to Rep. Sharp.

SECTIONS 4, 5, 7, and 16 OF THE NATURAL GAS ACT

The objective of this proposed waiver is to provide what the sponsors like to call "regulatory certainty." Specifically, they would like to have set in concrete the FERC's final rules and orders approving the pipeline tariff and the recovery of all costs related to the transportation of the gas under that tariff. Such a waiver is unprecendented. It is like saying Congress can not adopt these waivers because the pipeline sponsors have suddenly realized they cannot finance the pipeline under the Decision made by the President and affirmed by the Congress.

Suppose, for example, the sponsors for the purpose of the tariff have assumed that the depreciation life of the gas reserves is 20 years, but it turns out to be 40 years. The depreciation rate would be cut in half. Why shouldn't the ratepayer get the advantage of this? Why should the pipeline owners recover their depreciation expenses too quickly? Or, suppose there is a technological innovation that improves the efficiency of the gas compressors, thus reducing operation and maintenance costs? There are many more reasons why the FERC should reconsider a tariff under changed circumstances. What the sponsors and their banks are asking for is a condition which upsets the entire regulatory framework, but more importantly, further prevents the consumer from obtaining benefits of this project.

Sections 4 and 5 are the heart of the Natural Gas Act. These two sections empower the Commission to guarantee that rates charged by natural gas pipelines are just and reasonable. Without the operation of these two sections, ratepayers would have no protection against paying unjust and unreasonable rates. Section 5(b) affords ratepayers the added protection of permitting investigations by the Commission on its own motion or upon the request of any State commission to "determine the cost of production or transportation" where it cannot establish the rate. In fact, we would like to know from the project sponsors the specific reasons for waiving each of these sections. These are answers Congress should demand and should examine thoroughly. We suspect that much more is at stake than simple "regulatory certainty."

And where is the"regulatory certainty" in allowing the waiver of Section 7, which authorizes the Commission to direct the extension and improvement of transportation facilities and the establishment of physical connections; to prohibit the abandonement of facilities or service without permission? This section provides "regulatory certainty" to consumers, who need such certainty in view of the monopoly nature of the enterprise they confront, an enterprise that could choose to avoid the requirements of Sections 4, 5, 7,.and 16 and thereby adversely affect the lives of millions of ratepayers.

WHO IS WILLING TO BEAR THE RISKS AND WHO IS SHARING THE REWARDS

We think it is fascinating to observe the comments of the key financial advisors to the ANGTS project. H. Anton Tucher, vice president of the Bank of America, testified last week (as did three other bankers) that even with the adoption of the waiver package, the pipeline might still not be economically or financially feasible. Said Mr. Tucher, "We will not go forward until we have done a 'due diligence' investigation to satisfy ourselves on the technical, eocnomic, financial and regulatory feasibility of completing the whole system." Yet, neither the Administration nor Congress have such an investigation to help determine if this waiver package is sensible and cost-effective. Secretary Edwards has admitted "that the Administration has not performed a cost estimate of its own nor has it conducted a final evaluation of the sponsors' estimated costs." This has not been done, and yet the Administration is willing to risk consumer capital. If the banks are unwilling to make loans before they do a thorough study, why should the U.S. Government be so willing to allow consumer financing without a thorough investigation?

On top of all of this, on top of the waiver package, on top of all the support this Government has provided to the sponsors of the pipeline, they are still unwilling to commit themselves to the completion of the project if the waiver package is passed. Each of the sponsors was asked if the waiver package was sufficient to insure construction and completion, and none of them would state that it was. The bankers stated their doubts quite openly. Mr. Tucher wants "the waiver package [to] preserve flexibility to permit some form of pre-completion billing commencement in Alaska beyond that contemplated in the present waiver request that would provide some form of consumer risk-taking or actual tariff changes to commence prior to completion of the Alaskan segment." Robert H. Graham of Citibank isn't sure whether the waiver package "will be sufficient," while Stephen W. Jenks of Morgan Guaranty Trust states, "Whether or not this package will be sufficient to ensure such financing we are unable to say at this time."

This uncertainty is not surprising. I suspect that now that Mr. McMillian is close to getting his upper torso in the door, he's going to try to get all the way through and seek federal guarantees. In fact, a recent story in the Christian Science Monitor states that pipeline officials have already had conversations with administration staffers and have received optimistic signs that the Administration might consider such federal guarantees. I can even play out the scenario. Congress passes the waiver package. President Reagan proposes to accelerate decontrol. The bankers are now convinced that unless the Government helps the pipeline, decontrol will make Alaskan gas unmarketable. The Administration reluctantly agrees to propose a financial loan guarantee program to Congress.

Mr. Stanley J. Lewand, vice president of the Chase Manhattan Bank told you last week that "Lenders have indicated...that they are not willing to accept the risks that the delivery system might not be completed nor are they willing to accept the risk of a future regulatory body changing the conditions under which the tariff and tracking mechanisms have been allowed to be implemented...and that they must be assured of the timely repayment of their debt and the interest thereupon." If such prudent businessmen are unwilling to risk their money on this project, why should individual citizens be placed in even more jeopardy. I see no reason why Chase Manhattan Bank should be treated with more care and concern than an elderly couple on a fixed income living in a drafty apartment and wondering where their next gas bill payment is going to come from.

All of us would like to see the gas from Alaska produced and used for the benefit of the country. This pipeline may or may not be the project that does the job. The world has changed a great deal in four years. In September 1977,President Carter told us that the proposed Alcan system "will deliver Alaska gas at the lowest cost-of-service to U.S. consumers--probably below the cost of imported oil and substantially below the cost of other fuel alternatives." That is no longer true, if it ever was. The Department of Energy estimates that the 1987 imported Canadian natural gas price will be $13.10 per MMbtu. This compares with an estimate of between $15 and $20 for the delivered price of Alaskan gas. Undoubtedly, with or without decontrol, natural gas delivered by the ANGTS will be the most expensive fuel Americans can buy.

This pipeline, even unbuilt, has failed to live up to its glowing expectations. These waivers should be rejected. We should start the process of finding the most efficient and economic method of producing Prudhoe Bay gas again. Perhaps, the proposal to convert the gas to methanol and ship it down TAPS would make more sense. The time has come to stop trying to rescue John McMillian's $40 billion boondoggle and to start finding a better alternative.

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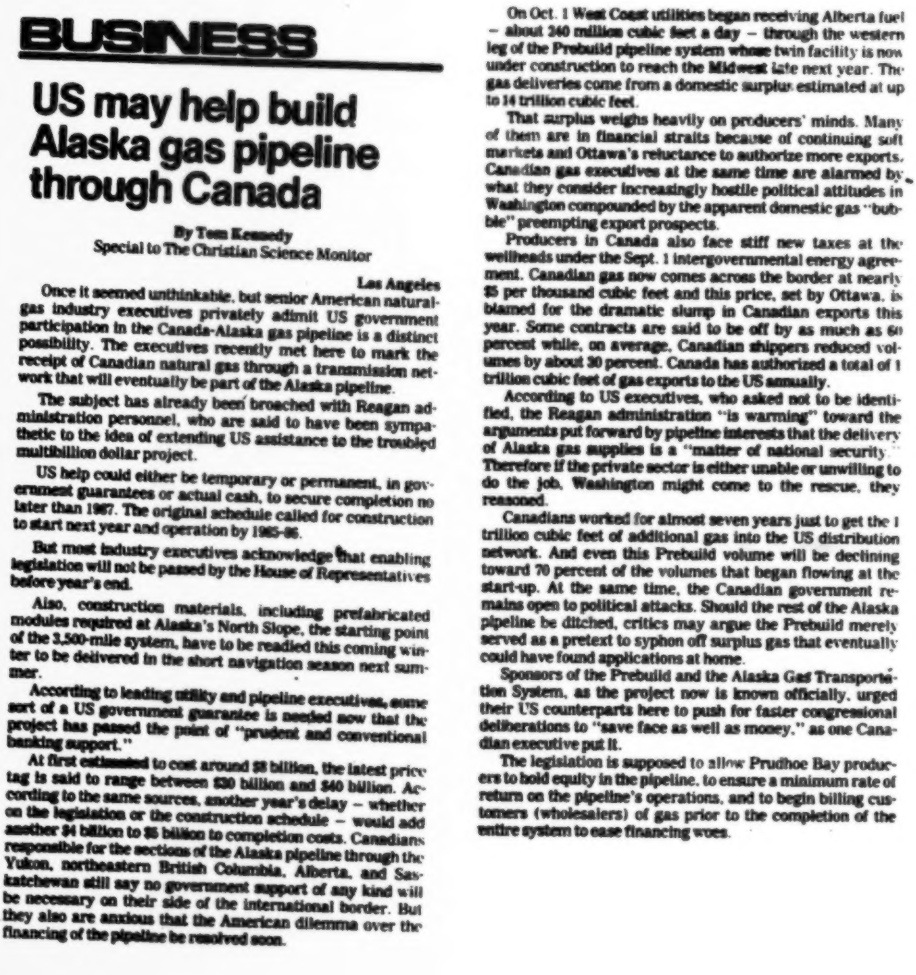

BUSINESS

US may help build Alaska gas pipeline through Canada

By Tom Kennedy
Special to The Christian Science Monitor

Los Angeles

Once it seemed unthinkable, but senior American natural-gas industry executives privately admit US government participation in the Canada-Alaska gas pipeline is a distinct possibility. The executives recently met here to mark the receipt of Canadian natural gas through a transmission network that will eventually be part of the Alaska pipeline.

The subject has already been broached with Reagan administration personnel, who are said to have been sympathetic to the idea of extending US assistance to the troubled multibillion dollar project.

US help could either be temporary or permanent, in government guarantees or actual cash, to secure completion no later than 1987. The original schedule called for construction to start next year and operation by 1985-86.

But most industry executives acknowledge that enabling legislation will not be passed by the House of Representatives before year's end.

Also, construction materials, including prefabricated modules required at Alaska's North Slope, the starting point of the 3,500-mile system, have to be readied this coming winter to be delivered in the short navigation season next summer.

According to leading utility and pipeline executives, some sort of a US government guarantee is needed now that the project has passed the point of "prudent and conventional banking support."

At first estimated to cost around $8 billion, the latest price tag is said to range between $30 billion and $40 billion. According to the same sources, another year's delay – whether on the legislation or the construction schedule – would add another $4 billion to $5 billion to completion costs. Canadians responsible for the sections of the Alaska pipeline through the Yukon, northeastern British Columbia, Alberta, and Saskatchewan still say no government support of any kind will be necessary on their side of the international border. But they also are anxious that the American dilemma over the financing of the pipeline be resolved soon.

On Oct. 1 West Coast utilities began receiving Alberta fuel – about 240 million cubic feet a day – through the western leg of the Prebuild pipeline system whose twin facility is now under construction to reach the Midwest late next year. The gas deliveries come from a domestic surplus estimated at up to 14 trillion cubic feet.

That surplus weighs heavily on producers' minds. Many of them are in financial straits because of continuing soft markets and Ottawa's reluctance to authorize more exports. Canadian gas executives at the same time are alarmed by what they consider increasingly hostile political attitudes in Washington compounded by the apparent domestic gas "bubble" preempting export prospects.

Producers in Canada also face stiff new taxes at the wellheads under the Sept. 1 intergovernmental energy agreement. Canadian gas now comes across the border at nearly $5 per thousand cubic feet and this price, set by Ottawa, is blamed for the dramatic slump in Canadian exports this year. Some contracts are said to be off by as much as 60 percent while, on average, Canadian shippers reduced volumes by about 30 percent. Canada has authorized a total of 1 trillion cubic feet of gas exports to the US annually.

According to US executives, who asked not to be identified, the Reagan administration "is warming" toward the arguments put forward by pipeline interests that the delivery of Alaska gas supplies is a "matter of national security." Therefore if the private sector is either unable or unwilling to do the job, Washington might come to the rescue, they reasoned.

Canadians worked for almost seven years just to get the 1 trillion cubic feet of additional gas into the US distribution network. And even this Prebuild volume will be declining toward 70 percent of the volumes that began flowing at the start-up. At the same time, the Canadian government remains open to political attacks. Should the rest of the Alaska pipeline be ditched, critics may argue the Prebuild merely served as a pretext to syphon off surplus gas that eventually could have found applications at home.

Sponsors of the Prebuild and the Alaska Gas Transportation System, as the project now is known officially, urged their US counterparts here to push for faster congressional deliberations to "save face as well as money," as one Canadian executive put it.

The legislation is supposed to allow Prudhoe Bay producers to hold equity in the pipeline, to ensure a minimum rate of return on the pipeline's operations, and to begin billing customers (wholesalers) of gas prior to the completion of the entire system to ease financing woes.

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Mr. SHARP. Thank you.

The gentleman from California.

Mr. DANNEMEYER. If the prebill features were not in this, would your organization support the waiver package?

Mr. ROTHSCHILD. I think there are other problems with the waiver package. The waiving of sections 4, 5, 7 and 16 of the Natural Gas Act and allowing the FERC to have discretion as to whether or not it will hold an on the record evidentiary hearing I think are serious failings within the waiver package.

So, I think there are other concerns. I think the concern about allowing——

Mr. DANNEMEYER. Let me ask a question. Under what conditions would you support the waiver package?

Mr. ROTHSCHILD. I don't think I would support this waiver package at all with any of its components.

Mr. DANNEMEYER. What would you change in it as a condition of getting the support of your organization?

Mr. ROTHSCHILD. I would say, if this pipeline could be privately financed without the waiver package, it would have our support.

Mr. DANNEMEYER. That would permit the producers to have a piece of the equity, then?

Mr. ROTHSCHILD. No. I am saying without the waiver package it has our support. I see no need for the waiver package. Even in the waiver package there is no limitation of producers equity. You know that there is no limitation on it.

Mr. DANNEMEYER. Well, we have no way of knowing whether people, what they say to us, is true because it is not the prerogative of this chairman to put witnesses under oath. But some of the people have testified here and say without involvement of the producers in terms of a percentage of the equity of the pipeline, there is no possibility that it can be built.

Do you accept that as a fact?

Mr. ROTHSCHILD. I accept their testimony that without the producers and pipeline that it cannot be built. Yes, I do.

Mr. DANNEMEYER. Well, if the producers are not in it, we can't build it.

Mr. ROTHSCHILD. Well, there are other alternatives. I think we have to be a little creative and go away from some of the traditional concepts. It may be feasible for the public to put up equity capital and get equity consideration in return.

Mr. DANNEMEYER. Who gets to decide whether the public puts up equity? Do you want to give that decision to the Members of Congress?

Mr. ROTHSCHILD. Well, this waiver package would in fact, if the noncompletion takes place, and if consumers are being charged for a pipeline that isn't delivering gas, they are putting up risk capital they shouldn't be putting up.

Mr. DANNEMEYER. Don't you think it is a pretty good incentive for the people who have put up $7.5 billion of risk capital to get that thing completed and natural gas flowing so they can get a return on equity? Isn't that a good incentive?

Mr. ROTHSCHILD. It is better incentive even not allowing any variation on that completion proposal? In other words, if they have no guarantee that the consumer is going to put up any money, they have even more incentive for getting their money back.

Mr. DANNEMEYER. Do you think it is in the national interest for this generation, as soon as possible, to use that natural gas from that Prudhoe field?

Mr. ROTHSCHILD. Are you saying we should delay it?

Mr. DANNEMEYER. I am asking the question of your organization. Do you think it is in the national interest for this country to, as soon as we possibly can, begin utilizing the natural gas in that Prudhoe field?

Mr. ROTHSCHILD. Not necessarily as soon as we can. I think we should at some point use that gas because it is a found resource, we know where it is and should try to use it. If we are talking about alternatives, I think, for example, with a conservation alternative—here we are talking about $40, maybe 50 billion dollars' worth of investment—we can get a better return right now by taking that money and putting it into conservation investments to make homes and industry much more efficient. It seems there is a lot of capital being taken out of the economy to put into one project which is highly risky.

Mr. DANNEMEYER. I think Mr. McMillian testified on the reasons for—and he dealt very candidly—with the statement he made in 1977, that the thing that has changed since he made that statement is that inflation has come along and escalated the projected cost of the project to where he can no longer live with the statement.

Do you accept that?

Mr. ROTHSCHILD. Of course. Of course this is changing. That is precisely why you can't accept AGA's projections about anything because things change so drastically. The Alaska pipeline went from $900 million to $9 billion in the course of a few years.

The point is, we cannot predict the future with any real certainty based upon precisely that claim and that statement, but the point is that if that is the case and we are putting ourselves into a position where we are going to build this pipeline, what is the real cost going to be when it is finally finished and is that gas going to be marketable?

I think the committee has raised serious questions in that regard, and I think from what I have heard, that is something that ought to be investigated very thoroughly. Complete kinds of studies ought to be made about what is likely to happen if there is continued controls, accelerated decontrol, total decontrol and types of cost overruns and escalations——

Mr. DANNEMEYER. Mr. Chairman, I have just one final question, if I may. Does your organization support the immediate decontrol of natural gas prices?

Mr. ROTHSCHILD. We do not.

Mr. DANNEMEYER. You don't? Well, that is puzzling. There is evidence that if we immediately decontrol natural gas prices, we can increase supply by 25 percent. Do you support increasing natural gas supplies by 25 percent?

Mr. ROTHSCHILD. Sure, but I don't think we need decontrol to do it.

Mr. **Dannemeyer**. There is also evidence by Professor Loury that if we immediately decontrol natural gas prices, we would drive down the cost of oil on the international market by $10 a barrel. Are you in favor of that?

Mr. **Rothschild**. I am in favor of that, but I think Mr. Loury, with all due respect, does not really have a good conception of how the international oil market works. I think he is absolutely wrong about that.

Mr. **Dannemeyer**. He also contends we could back out 2.83 million barrels of oil a day; that is, we will substitute natural gas for that.

Are you in favor of that?

Mr. **Rothschild**. Yes, but I don't think that is what would happen under decontrol. I think the opposite would happen. I think the price of natural gas under decontrol would go so high that those people who can switch to oil—namely, industrial users—will do so and it will increase, not decrease, imports.

Mr. **Dannemeyer**. Thank you.

Mr. **Sharp**. The gentleman from Oregon, Mr. Weaver, is recognized.

Mr. **Weaver**. Thank you.

Thank you very much for your excellent testimony. You raise some very good points. I would like to say to my dear friend from California that Mr. Louery, or Dr. Louery, also strongly supports the marginal pricing. He says the only way to make sense with energy, is to do marginal pricing.

So, I might go along with you. I will vote for deregulation——

Mr. **Dannemeyer**. Would you sign this?

Mr. **Weaver**. Absolutely—if we can put together a package of marginal pricing.

Mr. **Seiberling**. I register my dissent right now.

Mr. **Weaver**. Remember what you mean by marginal pricing; that is, if somebody cuts back their usage they use the cheaper gas. Only those who go on and waste and use more and more pay the incremental price.

So this would be the single most effective thing, number one, for conservation because people would stop wasting. They would get the price signal. They would say hey, this is really expensive stuff. Whether it was nuclear electricity or Alaskan natural gas, they would find out, wow, this is expensive stuff. I can't afford it. I drive a Ford, and I can't afford it.

Two, it would allow other energy forms of whatever kind to compete against a realistic price. Do you understand this devastates our energy industry? We have enough wood waste in the northwest to meet almost all our energy needs. Almost all of them. But it isn't being used. It is being wasted and burned in the woods, do you know that, because of the melded price.

By the way, the wood waste is cheaper than the new energy they are building out there, much cheaper. So we are throwing away and burning up and wasting a cheaper energy form because they take the expensive energy and meld it with the cheap energy, and the price gets down below the waste price.

Do you follow what I am saying? So here we are wasting, throwing away a cheaper energy form because of the melded price. We are doing this all over the country, throwing away energy systems and energy sources that are cheaper than what we are doing because of this melded price.

It is the worst thing for the free market, and it will destroy our energy systems. It is now doing so. It is now doing so.

Do you support marginal pricing?

Mr. **Rothschild**. As long as there is a basic volume of energy that people can get at a reasonable price, I think the marginal cost pricing concept means that if you use more, more than you need, as a basic survival amount, in that case I would support it.

Mr. **Weaver**. No, it has nothing to do with survival amount. You sell everything at its cost. If you have 50 cent natural gas, the first 10 percent of the natural gas, you get the first 10 percent of what you buy for 50 cents on up to the last 10 percent, which is $17.

Mr. **Rothschild**. Yes. Under that concept where you are charging people the first amount——

Mr. **Weaver**. What actually it costs. They get the cheap and they get the expensive.

Mr. **Sharp**. What happens if you weren't buying natural gas last year and a poor person moves into an old house?

Mr. **Weaver**. You just come on with whatever the rate is in the area, that is all.

Mr. **Rothschild**. How can you do that with decontrolled gas, because no longer are you going to have any quantity of gas that is low priced? It is all going to be up at the highest prices. It is a different situation.

Mr. **Weaver**. Well, you see I hadn't thought out my position on decontrol yet.

Mr. **Rothschild**. You better take back your signature in a hurry.

Mr. **Weaver**. You are absolutely right.

The only way you can do that is to tax the hell out of the people you know and get it back that way.

Thank you.

Mr. **Sharp**. The gentleman from Ohio.

Mr. **Seiberling**. Well, I have thought out my position on decontrol, and I am categorically, unequivocally and unalterably opposed to it. It may not harm the West Coast, but it would absolutely wreck the middle west and northeast.

I think you make some very good points. I was concerned when I read the proposed waiver on ownership of interest by the producers and the fact that it was the FERC and not the Attorney General that would decide whether the antitrust implications were objectionable.

I think that is wrong. I think you make a very good point that this will be the sole means of transmitting gas, if it goes into effect, from Alaska, and we should not allow a monopolistic, conflict of interest position to the producers.

I would hope, Mr. Chairman, that when we get to the point of voting on this that we will see if there is some way we could deal with each of the waivers as a separate issue, because it might be that Members would want to vote for one of them and not for the others. That would force the administration to come up with a new approach on some of them.

I would also consider that there is another possible alternative; that is, simply not voting on these and voting out an amendment to the act which would incorporate the necessary changes in a form we would consider acceptable and sending it back to the Senate in that form, and let them decide what they want to do.

As to the other questions raised by Energy Action, it does seem to me that the idea of the producers paying for the conditioning plant is certainly a very, very good point. I had forgotten about the representations made by Mr. McMillian when he first promoted his particular proposal for the pipeline.

I had the feeling, but hadn't done the research, that we had some representations made at that time to the effect that once we approved his proposal, that would be the end of it and we could forget it. It would be in the hands of the private sector.

I must say I have the feeling that we were sold a bill of goods and now we are being asked to face up to what should have been faced up to at that time. However, I guess that doesn't solve our problem.

I have no further questions, Mr. Chairman. Thank you.

Mr. **Sharp**. Mr. Rothschild, let me ask you—I will become the devil's advocate at this point in the questioning—you raised the question about being able to project in the future what the real costs of the pipeline is or anything else.

Millions of dollars have been spent to try to determine that, and everybody will acknowledge nobody can tell us precisely where we are at. Recent history seems to continue to show that whatever the increased costs, if we delay 3 years they will probably be more.

So, the question we are also stuck with is what risks do we create for our consumers if in fact we reject the package and we are the cause of the failure of this particular project?

Is there something waiting in the wings that we can promise our consumers that will assure them a cheaper source of energy in the future, or that there is a cheaper way to get this in the future?

Our difficulty is we can easily take a position, I didn't like this particular package, and so I had one of the waivers I thought wasn't right, or there is some reason for doing it.

But now let's talk seriously about taking responsibility for killing, not just quibbling, killing the Alaskan natural gas pipeline project.

Do you have any reason to believe there is an alternative in the wings that will get that energy to the United States in a cheaper way, or that there is some other increment of energy we don't need anyway that we can have available to us, and tell our consumers, I got you a good deal, I killed this project, but I know out there I can get you another increment of energy to meet your needs?

Mr. **Rothschild**. There are two questions. Basically, are we looking at Alaskan gas as one and other alternatives coming from the lower 48 essentially as others, or imports, as least expensive or least costly?

First, I don't think the Alaskan gas is going to be the least costly alternative. I think it will be the most costly. I think from the testimony we have had, Mr. McMilliam's testimony and FERC staff, Alaskan gas will cost between $15 and $20 an Mcf.

Mr. Sharp. That is in the first couple years. Everybody else testifies we are talking about $4 to $5 in the outyears.

Mr. Rothschild. I would like to see, Mr. Chairman, an evaluation of existing pipelines. Take the Transco system, take the Columbia systems, and see what declines there have been in their charges for the cost of service for those pipelines.

I will venture to say if you take a look at the five major ones, you won't find that nice curve that is being presented. I don't know what you will find, but I suggest it is one thing we ought to look at before we accept without investigation that nice curve that says it starts high and goes low.

That curve may start high and may just go down a little bit and stay flat. I don't know. I think that is one thing we have to look at. The assumption is that is what will happen. I am not certain it will. So at least initially it is going to be the most costly alternative that we have.

The other questions are—I think Congressman Weaver has raised a posibility, and people raised this early on—of a methanol plant in Alaska. I think the Atlantic Richfield Company, I think the Rand Corporation have done some analysis.

It was interesting that 2 weeks ago 60 Minutes had an analysis of methanol being used by, in fact, one of the primary financial sources that testified here, the Bank of America. It has about 1,000 to 1,500 automobiles running on methanol.

Mr. Sharp. But the testimony by Arco, in this set of hearings, was simply that this is a higher cost alternative.

Mr. Weaver. Mr. Chairman, would the chairman yield?

Mr. Sharp. Sure.

Mr. Weaver. You must remember they have a strong vested interest in the pipeline. They want to make the money as fast as they can. Methanol, whatever, whether it is good or bad, doesn't get it out as fast. You have to remember, their testimony is biased.

Mr. Sharp. You could be right. That is a question before us. They also testified if they had their druthers, they would invest it somewhere else, they could make a faster buck investing it elsewhere than in this particular project. They could get a higher rate of return on their capital investment.

Mr. Weaver. If the chairman would yield.

Mr. Sharp. It was their testimony. I am not defending them.

Mr. Weaver. If the price goes up from $2.13 on that gas, they will make an awful lot of money on it. They are just not in a big hurry. They can reinject that gas into that field for years, they testified. Indefinitely.

So they are sitting on a gold mine and they know it.

Mr. Sharp. I might say one could therefore argue it is in Arco's interest to see the whole thing killed and just let it sit and make more money off the gas at a future date. I don't know what the economics are.

One of the things we are trying to determine is where do the incentives lie in this whole process. We are hearing a lot of conflicting testimony. Go ahead.

Mr. Rothschild. The second point is, what else is available. I think the Potential Gas Supply Committee out of the Colorado School of Mines has estimated there are enormous resources of gas still to be found in the United States. We are finding that a lot of the drilling below 15,000 feet is encountering enormous resources of gas, highly productive.

Our own Washington Gas Light Company found one well coming out at 100 million cubic feet a day. The exploratory success rate for deep gas is 60 percent in the Anadarko gas basin. We have gas from coal seams. We have gas all over the place.

So I think there may be some alternatives right here that we, just gas alternatives in the United States in the lower 48, that may be an alternative to Alaskan gas.

On top of that you will have all sorts of, as I said before, conservation investments that can be made that people who use gas right now could be making to cut back their consumption of gas, which would allow us to have more gas for the future.

So, I think those are two, and there are probably many, many others that people have discussed.

Mr. SHARP. The problem we always have in this kind of discussion is whether or not we are just trading off one versus the other, or whether or not there has to be some package of all of these. I mean, it is not whether you like this increment or that increment, but whether perhaps the country is going to need both increments of gas or other energy sources.

Mr. ROTHSCHILD. It all depends on whether you see the future as the continuing decline of energy consumption per capita or GNP, which we have been seeing in the last few years. The more investments in using energy more efficiently that we make, the better off we are.

We may be able to keep ourselves on an energy plane that is level or even decrease our energy use. If we do that, we have even more energy options available for the future, and we can consider the gas pipeline again under different circumstances.

I agree with you. Inflation is going to escalate that cost, but that cost may be too high now. The fact that financial institutions are not willing to put up their risk capital for this project indicates how economically uncertain it really is.

Mr. SHARP. Let me ask you, do you think they will put it up if the waiver is passed? There is still risk for them, am I not correct?

Mr. ROTHSCHILD. They have said so. Even if the waiver package is passed, they are not sure they are going to finance it.

Mr. SHARP. I trust somebody out there is going to be concerned about whether or not to go ahead and put big bucks into the thing no matter what we do.

Mr. ROTHSCHILD. In fact, they haven't even precluded the possibility of coming back to Congress seeking additional——

Mr. SHARP. My point is we wouldn't by any stretch of the imagination in passing these waivers eliminate, even substantially reduce, the risks of investing in this project for Arco, Sohio, Exxon, and others involved in this, including other investors.

Mr. ROTHSCHILD. I think we do reduce some of the risk clearly, otherwise the waiver package wouldn't be proposed, No. 1. No. 2, I think you start a very serious precedent of eroding some of the regulatory protections for consumers under the Natural Gas Act.

Mr. SHARP. I can appreciate that, but I guess what I am saying is I thought you were arguing for a minute that the free market was telling us this is a bad product. I guess what I am saying is we are still going to get an awful lot of input on that question at a later point.

In other words, we haven't eliminated totally the market test. Originally when the first waivers came up, I was under the impression we were just really eliminating the market test of this project.

But in reality, there is going to be a substantial market hurdle to get over here and an awful lot of people are going to ask whether they can make better bucks somewhere else rather than putting it into this project.

Therefore there is a market test ahead. I agree with you. Obviously we are reducing some of the risk to try to get investors in. That is the whole philosophy behind the waiver package.

There is an interplay here between two of the waivers, one that allows producers to invest into this project—which is what, $6 to $8 billion or more—and the one that has the prebilling risk for consumers.

When they do invest, because there is one thing I believe about them, whatever people think about conspiracies, I do believe they want to make money, and I do believe corporate officials tend to be held accountable for whether or not they produce profit and make money.

Therefore, I suspect they are going to develop a very healthy interest in whether or not this project goes once they sign on the dotted line.

Do you see what I am saying?

Mr. ROTHSCHILD. I understand that. What they seem to be saying also is they want to take as much of the risk out of this as possible, which is what they are entitled to do.

However, with other companies, GM, the automobile industry, they don't come and ask us to prepay automobiles so they can produce them. That is not the way the free enterprise system is supposed to work.

It is not free enterprise when companies come in and want a guarantee that their investment will be returned. Either you put your money in and take your risk, and risk losing it, or you don't. If this project is of such national security and national economic importance, then there is a role to be played by the Federal Government.

Maybe the Federal Government ought to get involved. Maybe it ought to take an equity interest to insure that the pipeline is built because the private sector cannot finance it.

Mr. SHARP. In other words, you would be willing to take the market test out of this and have us eliminate once and for all the market test by simply having us put——

Mr. ROTHSCHILD. Exactly. Let's be honest and truthful. If the market can't do it, let's be straightforward and not fudge around and do covert types of subsidies, but straight out say OK, the Government thinks this is national security. We are going to take a national interest in it.

They do it in Europe, all over the world. There is nothing wrong with it. It is not just Prudhoe gas, but gas that surrounds the entire area that is involved here.

Mr. **Sharp**. Is there a chance it could cost our consumers more to do it that way?

Mr. **Rothschild**. I don't see how much more it could cost. If you are saying the Federal Government is any less efficient than private industry, I just put into the record the cases of Chrysler and Lockheed and Penn Central and a number of private enterprises that also were mismanaged and couldn't compete in the marketplace.

There is as much efficiency in Government as there is inefficiency and as much inefficiency in the private sector as efficiency. I don't think one cancels out the other.

Mr. **Weaver**. First on this subject the danger of having the Federal Government in there is the fact that with its unlimited taxing power it might do an extremely inefficient system. It might build a pipeline that just could be done much cheaper the other way.

That is why the market is so important. Then they will say hey, if we can do it cheaper, we will. I hope the market works.

I want to ask the chairman a question. Will there be a witness in future hearings that could answer tax questions as to the company's tax situation on this?

Mr. **Sharp**. As I understand, we have a whole series of people on the financial side of this. However, it does not at this point mean somebody specifically zeroed—are you talking about tax consequences for the companies?

Mr. **Weaver**. The builders, right. I want to say to my friend from California that it has occurred to me when he said these people are putting in $7 or $8 billion of their own money, in a $40 billion pipeline that would almost entirely be covered by their tax credit.

I just was informed of a synthetic fuels plant in Colorado where they are going to borrow $3 billion from the Government and put up—or put up $2 billion and put up $200 million of their own money. With the tax credits they actually get back, before they go into the project, they have made $100 million cash. None of their own money in it.

We used to do that in the real estate business, if we got a real sweet deal, but I never did it with Government money. That would be real nice. I am saying the pipeline situation might be something that these people might not actually have that money, that $7 billion in. That is what I would like to find out. I don't know.

I want them to be at risk. I agree with you. If they are not at risk, if the tax credit says no, you get all your money back, we might take another look.

Mr. **Sharp**. Any further questions?

Mr. **Seiberling**. Mr. Chairman, I just want to say also that in his prepared statement it seems to me Mr. Rothschild has made a very cogent argument about the dangers of waiving the evidentiary hearing, which frankly I had not really focused on before, and that this would deprive consumers and their representatives from cross-examining testimony and so forth.

In effect, it would mean that there would be regulatory approval without the public really having had a chance to do an effective job of finding out the facts.

I think that the point made in his testimony about the waivers of sections 4, 5, 7, and 16 in the Natural Gas Act is equally compelling. As he points out, suppose it turns out that the depreciation life of the gas reserves is 40 years instead of 20 years. The depreciation rate could be then cut in half and the ratepayer get an advantage out of it instead of the pipeline owners.

But the way the waivers are written would in effect mean that that this couldn't happen. Is that correct?

Mr. **Rothschild**. That is my understanding, Congressman.

Mr. **Seiberling**. I just think that the more you look at this thing, the more worms you turn up.

Mr. **Sharp**. Will the gentleman yield?

I believe we are limited to the debt capital, not the equity. In other words, payment for equity would not be included. You could adjust the rate schedule so long as it did not affect the debt.

Mr. **Seiberling**. That may be, but I would want to know some more about it.

Mr. **Sharp**. We will be having the Federal Energy Regulatory Commission, among others, before us on Friday.

Mr. **Seiberling**. Yes.

Mr. **Sharp**. Where administrative questions would be appropriate.

Mr. **Seiberling**. Well, thank you very much.

Mr. **Sharp**. Thank you very much. We appreciate your testimony.

Mr. **Rothschild**. Thank you, Mr. Chairman.

Mr. **Sharp**. We obviously have a number of more days of testimony.

Mr. **Rothschild**. Oh, if I may, I would like to also answer in more detail the questions raised by your letter.

Mr. **Sharp**. We would be happy to. We hope you will submit that to the subcommittee.

Mr. **Rothschild**. Thank you very much.

Mr. **Sharp**. The hearing will stand adjourned until Friday at 10 in room 2154.

[Whereupon, at 4:12 p.m. the subcommittees adjourned, to reconvene on Friday, October 30, 1981.]

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